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ABSTRACT

The major goal of the Comprehensive Instructional Management System (CIMS) for mathematics is to provide the classroom teacher in New York City with a well-structured, objective-based curriculum. This first part of the manual for Level 2 includes varied numbers of modules for 12 topics: numbers and numeration; addition of whole numbers; subtraction of whole numbers; multiplication of whole numbers; division of whole numbers; fractions; geometry; measurement; algebraic concepts; graphs, probability, and statistics; problem solving; and review. The instructional sequence is listed, followed by the content listed by topic. Reinforcement of previously learned skills is incorporated into the sequence where appropriate. Then, each objective is taken up in turn, with vocabulary, activities for getting started, and teaching strategies described. The pupil's worksheets are interspersed. Resource materials, symbols, and equipment lists are included. (MNS)

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CIMS

COMPREHENSIVE INSTRUCTIONAL MANAGEMENT SYSTEM

A Cyclical Mathematics Curriculum

PART 1—TEACHER

SE 047 530

NEW YORK CITY BOARD OF EDUCATION
OFFICE OF CURRICULUM DEVELOPMENT AND SUPPORT
DIVISION OF CURRICULUM & INSTRUCTION

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FOREWORD

The Comprehensive Instructional Management System (CIMS) is a unified mathematics curriculum for grades K-7. The curriculum is cyclical in design, and reflects the most recent New York City and New York State guidelines.

Utilizing the experience of our system's teachers, we have developed a teacher-designed curriculum that includes a rich selection of classroom-tested successful mathematics activities. The major goal of the CIMS mathematics project is to provide the classroom teacher with a well-structured, objective-based curriculum. All objectives are supported by a variety of strategies. Student mastery of these objectives is readily diagnosed through the system's testing component.

The curriculum format is structured to allow the teacher to determine the ability level of the students in the topic under study, and to permit the students to move forward at their individual rates. Each module of instruction provides the teacher with a set of related performance objectives. These objectives are supported by activities which probe and develop the students' readiness to undertake new skills and concepts. Further reinforcement is given to mastery of the objectives through accompanying student workbooks.

It is hoped that this curriculum will not only assist teachers in developing vital mathematics instruction, but will serve to expand and enrich students' mathematics skills.

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The Comprehensive Instructional Management System (CIMS) was developed as a project of the Division of Curriculum and Instruction, Charlotte Frank, Executive Director. Mr. Bernard Mecklowitz, Community School Superintendent CSD 1; Dr. Peter Negroni, Community School Superintendent CSD 12; Dr. Harvey Garner, Community School Superintendent CSD 18; Carlos Edwards, Community School Superintendent CSD 23, and Joseph Pacheco, Community School Superintendent CSD 32 supervised the overall development of the CIMS program within their respective districts.

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INTRODUCTION

The Comprehensive Instructional Management System (CIMS) is a teacher-designed educational delivery system composed of a curriculum, a testing component and a computer managed reporting system.

Designed to support mathematics instruction in the classroom, CIMS provides a comprehensive cyclical mathematics curriculum for grades K through 7. Each manual describes the curriculum for a single level or grade. Teacher curriculum developers from elementary, intermediate and senior high schools utilized the most current New York City and New York State guidelines in formulating the curriculum's modules and sequence.

Curriculum Topics

The CIMS mathematics curriculum has been organized into the following 14 topics:

.01	Numbers and Numeration
.02	Addition of Whole Numbers
.03	Subtraction of Whole Numbers
.04	Multiplication of Whole Numbers
.05	Division of Whole numbers
.06	Fractions
.07	Decimals
.08	Integers
.09	Geometry
.10	Measurement
.11	Algebraic Concepts
.12	Graphs, Probability, Statistics
.13	Problem Solving
.14	Review

Modules of Instruction

The CIMS curriculum is organized into modules or groupings of similar skills or understandings. Each module has a suggested period of duration for student mastery, a listing of new skills to be mastered by the student in the form of performance objectives, a section devoted to vocabulary, terms and symbols, getting started activities which serve as prerequisite skills in preparation for undertaking new objectives, strategies for teaching the new skills and student activities for providing reinforcement for the newly learned objective. Note that the lesson duration is included only as a guideline to the teacher for planning purposes. The actual time required for each module will vary from class to class and from child to child depending on the needs of the students and the teacher's judgment.

Priorities of Performance Objectives

There is an order of priority to be recognized in teaching the content presented in the CIMS NEW YORK CITY MATHEMATICS CURRICULUM. Performance objectives with the greatest priority are so basic that unless the student acquires a satisfactory degree of competency in them, the student cannot progress. Such topics are marked A and mastery by all pupils is essential.

Performance objectives marked B are required to be presented to all students. Mastery is not expected at this time. These objectives will be developed further and reinforced later.

Performance objectives marked C are of special interest. These should be taught to increase positive attitudes towards mathematics.

Summary:
- A - Mastery of this objective is essential for progress. Opportunities for reinforcement should be provided throughout the school year.
- B - These objectives are to be taught to all pupils. Mastery is not essential at this time because the topics will be further developed and reinforced.
- C - Objectives of special interest.

Topic Tab Key

01. Numbers and Numeration
02. Addition of Whole Numbers
03. Subtraction of Whole Numbers
04. Multiplication of Whole Numbers
05. Division of Whole Numbers
06. Fractions
07. Decimals
08. Integers
09. Geometry
10. Measurement
11. Algebraic Concepts
12. Graphs, Probability, Statistics
13. Problem Solving
14. Review

Module Coding Key

2.06.01.02 A

Grade level
(Grade 2)

Topic number
(.06 Fractions)

Module ranking within topic and level
(Fractions: Fifths, Sixths and Tenths)

Performance objective within this module
(The student will be able to
separate a concrete object into
fifths, sixths and tenths and
identify the parts as equal.)

Priority
(See page xiv)

INSTRUCTIONAL SEQUENCE DESCRIPTION

An instructional sequence is given in list form on the following pages for this level. The sequence has been arranged to reflect what is considered the most effective presentation of the mathematics curriculum. Each module in the list is described by its unit number, module number, title, and page location.

The CIMS tests are integrated within the manual sequence. The test number is located in the first column. Each test is designed to assess priority objectives from the preceding modules. The tests are used to determine student mastery of specific performance objectives within these modules and appear in a multiple choice format. Each performance objective code number preceded by an * indicates that the performance objective is not tested on a CIMS test.

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INSTRUCTIONAL SEQUENCE - LEVEL 2

TEST NUMBER	UNIT NUMBER	MODULE NUMBER	TITLE	PAGE NUMBER
	1	2.10.01	Time - months and years	1
	2	2.14.01	Recognize and name whole numbers 0 through 100 by ones	3
	3	2.14.02	Recognize and name whole numbers 10 through 100 by tens	4
	4	2.01.01	Count hundreds through ten hundred (1000)	5
2.01	5	2.01.02	Read and write standard numerals (100 through 1000)	6
	6	2.01.03	Count by tens and fives to 1000	7
	7	2.01.04	Relation symbols =, <, >	8
2.02	8	2.13.01	Locate information	9
	9	2.12.01	Data - collect, tabulate, arrange and compare in tables	11
	10	2.14.03	Addition and subtraction facts	12
	11	2.10.02	Quarters, half-dollars	13
	12	2.01.05	Even and odd numbers	14
2.03	13	2.01.06	Round numbers through 99 to the nearest ten	15
	14	2.09.01	Points, lines, line segments, and rays around us	16
	15	2.11.01	Open sentences	17
	16	2.01.07	Place value through 999	18
	17	2.10.03	Money - dollars	19
	18	2.01.08	Ordinal numbers eleventh through thirty-first	20
	19	2.09.02	Explore properties of a circle, square, rectangle and triangle	21
2.04	20	2.02.01	Addition of 2- and 3-digit numbers without regrouping (exchange)	23
	21	2.03.01	Subtraction of a 2-digit number from a 3-digit number without regrouping (exchange)	25

INSTRUCTIONAL SEQUENCE - LEVEL 2

TEST NUMBER	UNIT NUMBER	MODULE NUMBER	TITLE	PAGE NUMBER
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INSTRUCTIONAL SEQUENCE - LEVEL 2

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INSTRUCTIONAL SEQUENCE - LEVEL 2

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LEVEL 2

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DO YOU REMEMBER? - LEVEL 2

DO YOU REMEMBER is an added feature to the CIMS manual. It is located at the bottom of some worksheet pages and allows students to reinforce previously learned skills in order to support a cyclical curriculum.

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2.10.02.01	Recognize and identify a quarter and a half-dollar	16c
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1.03.07.01	Subtract a 1-digit number from 11 through 18 where the difference will be 2 through 9	17a
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2.11.01.01	Identify and solve an open sentence..........	22a
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2.01.07.03	Write a given numeral in expanded form.....	40d

Unit 1

2.10.01 TIME - MONTHS AND YEARS

(1-2 lessons/ongoing)

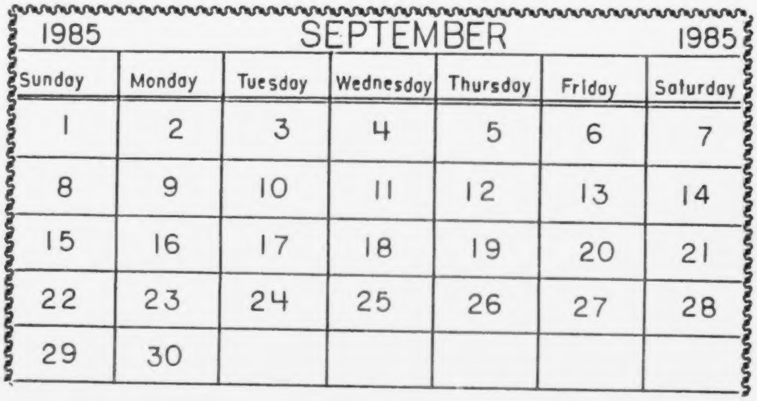
PERFORMANCE OBJECTIVES

The student will be able to...

*2.10.01.01A recite the months of the year in sequential order;
e.g,
January, February, March,...December

2.10.01.02A state what last month was and what next month will be;
e.g.,
This month is September.
Last month was August.
Next month will be October.

2.10.01.03B identify the number of days in a month and in a year;
e.g.,



1985 SEPTEMBER 1985

Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
1	2	3	4	5	6	7
8	9	10	11	12	13	14
15	16	17	18	19	20	21
22	23	24	25	26	27	28
29	30					

This month has 30 days.
365 days = 1 year
366 days = 1 leap year

2.10.01.04A read the month, day, and year from a calendar; e.g.,

Today is Thursday, September 12, 1985.

1985 SEPTEMBER 1985

Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
1	2	3	4	5	6	7
8	9	10	11	12	13	14
15	16	17	18	19	20	21
22	23	24	25	26	27	28
29	30					

2.10.01.05B identify the dates that are before and after a given date.
e.g.,

Today's date is September 11, 1985. Yesterday's date was September 10, 1985. Tomorrow's date will be September 12, 1985.

A week from Wednesday will be September 18, 1985.

2.10.01

VOCABULARY

TERMS

January
February
March
April
May
June
July
August
September
October
November
December
month

GETTING STARTED

Prepare a blank calendar for the current month. Say, "Who can tell us what month this is?" Write the name of the month on the calendar. Say, "Who can tell us the name of the first day of the week?" Ask a student to write "Sunday" on the calendar. Continue through Saturday. Ask the students to recite the names of each day of the week. Ask several students to fill in each day in the month. Say, "How many days are there in one complete week? What are the names of the days of the week?"

Prepare ten pictures with activities involving the concept of before/after. The activities may involve daily or seasonal activities, e.g., putting on boots/rain and snow, putting on a swimsuit/youngsters enjoying a pool, putting on shoes/tying laces, taking a bath/getting dressed. Write a chart of before and after activities on the chalkboard. Display two pictures and ask which activity occurs before or after the other.

e.g.,

Before	After
Wake up	Brush your teeth
Put on socks	Put on shoes

2.10.01

2.10.01.01 **recite the months of the year in sequential order**

STRATEGY 1: Prepare tape, twelve cards, each with the name of a month, and twelve numeral cards numbered 1 through 12. Display the numeral cards on the chalkboard ledge. Ask the students to say each number aloud. Say, "With what month does the year begin? (January) Select the January card, and tape it above the number 12 card. What is the last month of the year? (December) Select the December card and tape it above the number 12 card." Repeat this procedure for the other months suggesting seasonal clues and before and after clues until the number line has been transformed into a month line. Ask the students to write the months in order in their notebooks. Repeat this procedure until the sequence of months is known.

STRATEGY 2: Prepare twelve picture cards each with activities representing the months, e.g., A heart for Valentine's Day in February, a turkey for Thanksgiving in November. Write the name of the month on the back of each card. Prepare a chart with two columns and twelve numeral cards numbered 1 through 12, one numeral on each card. Ask students to place the numeral cards on the chart in counting order.

e.g.,

Numerals	Months
1	
2	

Display each picture card. Elicit from the students in what month the picture belongs. If the month is correctly named, ask the student to turn over the card, read the month and tape the picture

STRATEGY 2: cont'd

card beside the correct numeral. Ask the students to say and write the months in order. For practice repeat the process by displaying picture cards and matching numeral cards until students know the months in sequential order.

2.10.01.02 **state what last month was and what next month will be**

STRATEGY 1: Display a calendar for the current month. Prepare twelve oaktag cards with the names of each month. Place the cards in sequential order on the ledge of the chalkboard. Say, "Who can tell us the name of the month we are in?" Ask a student to come up and point out the card with the name of that month. Say, "Who can tell us the name of the month that comes just before September?" After the correct response has been elicited, point to the card naming the month before and have the students repeat, "Last month was August." Now say, "Let's go back to September. Who can tell us the name of the month that comes after September?" Point to the card naming the month after and have the students repeat, "Next month will be October." Repeat this procedure using other months.

STRATEGY 2: Prepare flashcards with the names of each month and twenty cards with questions such as, "I am the month that comes before December." or "I am the month that comes after July." Place the cards in a box labeled Secret Box. Place the month cards in sequential order on the ledge of the chalkboard. Say, "Let's say the name of each month of the year."

STRATEGY 2: cont'd

After the names of the months have been recited, say, "What month comes just before June?" (May) What month comes just after June?" (July) Show the students the secret box. Say, "This is a secret box. Inside there are questions with clues to the answers." Ask a student to choose a card, read it aloud and select another student to answer. If the student gives the correct answer, he/she may repeat the procedure. Repeat this procedure until each student has had a turn.

2.10.01.03 identify the number of days in a month and in a year

STRATEGY 1:

Prepare twelve month cards with the name of each month beside the number of days in that month. After reviewing the months of the year sequentially, use a large monthly calendar to count the days in each month. On the chalkboard make a chart listing the months and number of days in each.

Elicit from the students how many months have thirty-one days, thirty days, and twenty-eight days. Ask students to come to the front of the classroom to display the month cards. Ask all the students displaying months with thirty-one days to stand in one area of the classroom, with thirty days in a different area and with twenty-eight days in still another area. On the chalkboard add the number of months with the same number of days.

e.g.,

There are seven months with thirty-one days.
There are four months with thirty days.
There is one month with twenty-eight days.

STRATEGY 1: cont'd

Then, write the following poem on the chalkboard.

Thirty days has September,
April, June and November,
All the rest have thirty-one,
Except February which has twenty-eight.

Say, "If the number of days in all the months are added, they equal 365 days in a year." Explain that the calendar makes up for an extra quarter of one day of the Earth's movement per year by adding one day to the month of February every four years. This extra day every four years makes the year different and we call it a Leap Year. Ask the students how many days February contains in a leap year (29), and the total number of days in a leap year. (366)

STRATEGY 2: Prepare twelve cards with the names of each month. Place the cards on the ledge of the chalkboard. Prepare a copy of a yearly calendar for each student or group of students. Using the calendars elicit that the different months contain different numbers of days. Draw three large circles on the chalkboard. Label the circles.

e.g.,

Ask a student to choose a month card, say the name of the month, the number of days in the month and to tape the card to the inside of the correct circle. Continue until all twelve cards are taped to the chalkboard. Say, "If the number of days in each month are added together, we know the total number of days in one year." Repeat the above procedure until the students know the number of days in each month, in a year, and in a leap year.

2.10.01

2.10.01.04 **read the month, day, and year from a calendar**

STRATEGY 1: Prepare a blank calendar of the current month for display. Say, "Who can tell us the name of this month?" Ask a student to write the name of the month on the top of the calendar. Say, "Who would like to write in the days of the week?" After the days of the week have been written, say, "Who remembers the number of days in this month?" (If students have difficulty, review the rhyme, "Thirty days have September, ...") After the days and dates have been written, circle today's date and say, "Today is Monday, September 23, 1985." Circle several other dates and ask individual students to read them, being sure to include the month, day and year. Vary the format by saying, "What is the date of the last Wednesday, the second Friday, ...?" Continue this procedure using other dates.

STRATEGY 2: Prepare and display a large copy of the calendar for the entire year. Say, "What is the name of this month? What is this year? How many days are in this month?" Circle today's date and say, "Who can name the month, day and year of the date that is circled? What is the date of the first Monday, third Friday,...? Now, let's name all the months of the year." Ask each student to find his/her birthday on the calendar, circle it and recite the month, day and year.

2.10.01

2.10.01.05 **identify the dates that are before and after a given date**

STRATEGY 1: On the chalkboard, place a calendar for the current month. Point to it and say, "What is the name of the month? What is the year?" Then ask the students to repeat the name of the month and each date, e.g., September 1st, September 2nd, ... Point to today's date and say, "Today is September 13, 1985." Ask a student to find the day that is one day before today. Say, "Yesterday was September 12, 1985." Now ask a student to find the day that is one day after today. Say, "Tomorrow will be September 14, 1985." Point to September 13 and say, "What will the date be a week from today?" Repeat this procedure to find the dates a week from yesterday, a week from tomorrow ...

STRATEGY 2: Draw a number line numbered 0 through 31 on the chalkboard. Prepare a calendar for the current month. Point to any number on the number line and say, "What number is this?" Then point to the number that is one before and the number that is one after and say, "What number is this?" Repeat this procedure to reinforce the concepts of before and after. Point to the calendar and say, "What is the name of the month? How many days are there in this month? What is today's date?" Elicit the correct date and ask all the students to repeat it. Say, "Who can tell us what tomorrow's date will be?" Ask the students to repeat the date.

STRATEGY 2: cont'd

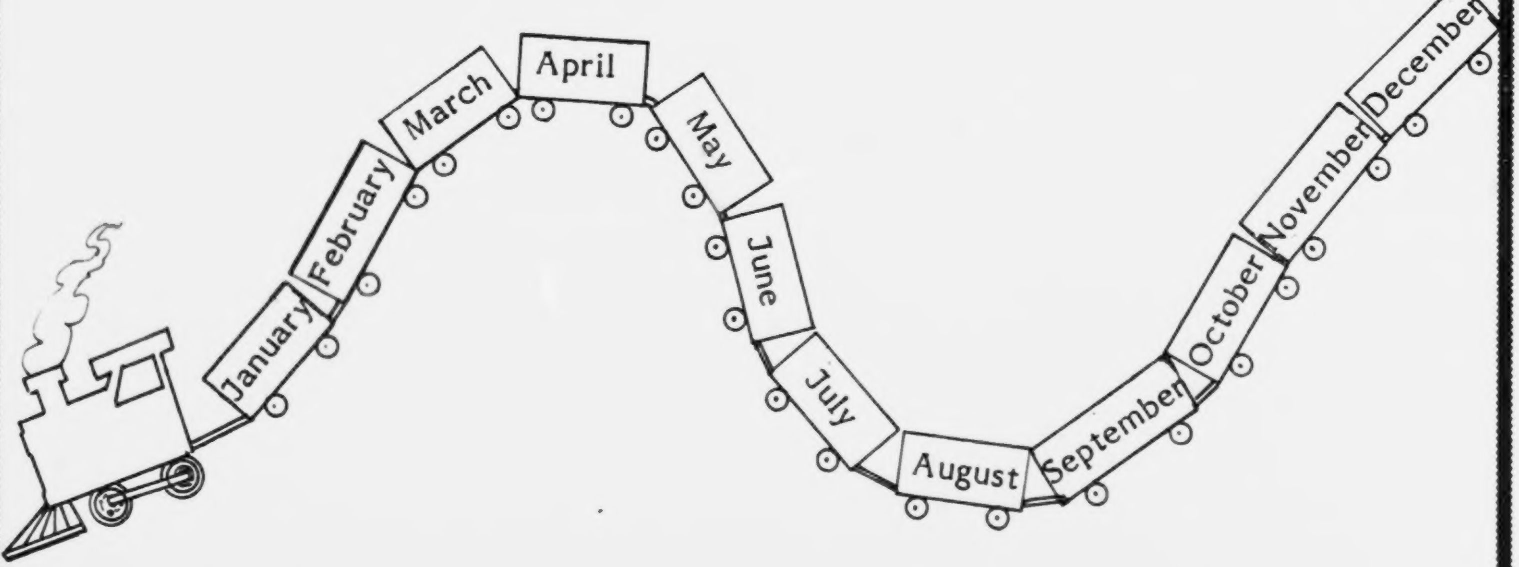
Develop the understanding that one number before a given date is yesterday and one number after a given date is tomorrow. Repeat this activity, randomly selecting dates, and asking the students to find the date that is one before and one after a given date.

Ask the students to look at their calendars and find the date that is one week from today. Say, "What will the date be a week from Wednesday? What was the date a week ago Tuesday?" Repeat this procedure using other dates coming before and after varied given dates.

P.O. 2.10.01.02

NAME: ______________ CLASS: ________ DATE: ________

Read the months on the train to complete each sentence.


January
February
March
April
May
June
July
August
September
October
November
December

1. If this month is September, next month will be October.
2. If last month was July, next month will be ________.
3. If this month is May, next month will be ________.
4. If this month is November, next month will be ________.
5. If this month is August, last month was ________.
6. If this month is July, last month was ________.
7. If this month is April, last month was ________.
8. If last month was January, next month will be ________.

P.O. 2.10.01.04

NAME: ______________________ CLASS: ________ DATE: ________

Read the calendar to complete the sentences below.

1985 SEPTEMBER 1985

Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
1	2	3	4	5	6	7
8	9	10	11	12	13	14
15	16	17	18	19	20	21
22	23	24	25	26	27	28
29	30					

1. The month on the calendar is ____________.
2. The year on the calendar is ____________.
3. This month has __________ days.
4. The first Sunday in the month is ____________.
5. The third Tuesday of the month is ____________________.
6. The second Friday of the month is ____________________.
7. The fourth Saturday of the month is ____________________.
8. The last day of the month is __________________.

P.O. 2.10.01.05

NAME: ____________ CLASS: ________ DATE: ________

Read the calendar to answer the questions below.

1985 OCTOBER 1985

Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
		1	2	3	4	5
6	7	8	9	10	11	12
13	14	15	16	17	18	19
20	21	22	23	24	25	26
27	28	29	30	31		

	What is the date a day before?	What is the date a day after?
October 23, 1985	____________	____________
October 11, 1985	____________	____________
October 2, 1985	____________	____________
October 30, 1985	____________	____________
October 19, 1985	____________	____________

2.14.01 RECOGNIZE AND NAME WHOLE NUMBERS 0 THROUGH 100 BY ONES

(ongoing)

PERFORMANCE OBJECTIVES

The student will be able to...

2.14.01.01 count to 100 by ones;
e.g.,
0, 1, 2, 3, 4, ...100

2.14.01.02 name the whole number between any two numbers from 0 to 100;
e.g.,
76, ____, 78

2.14.01.03 name the whole number immediately before and immediately after any whole number from 0 to 99.
e.g.,
_____, 63, _____

41

GETTING STARTED

Prepare felt animal cutouts and a flannelboard. Place ten animal figures on the flannelboard in a row. Say, "How many animals are on the flannelboard?" (10) Ask a student to count them. Place five more animal cutouts on the flannelboard. Say, "Who can count from 1 through 15 in order?"

Prepare a set of cards numbered 0 through 10. Hold up a card at random. Say, "Who can tell us the name of this numeral?" Distribute the card to the student who answers correctly. Continue until all the cards have been distributed. Say, "I will say a number. If you have the numeral card I name, place it on the chalkboard ledge." Repeat the procedure until all the cards have been placed on the ledge. Ask a student to point to the number as he/she says them in order from zero through ten.

2.14.01

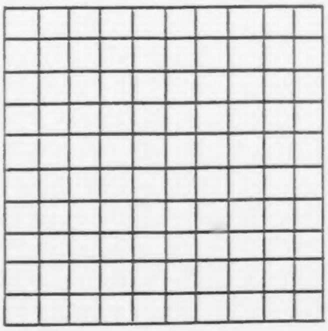
2.14.01.01 count to 100 by ones

STRATEGY 1: Prepare and display a hundreds chart. Say, "Today, we will play a game called 'Buzz.' We will take turns saying the numbers on the hundreds chart in counting order, starting with zero. When we get to a number with a zero, we will say 'buzz' instead of the number." Demonstrate by saying, "Buzz, one, two.... nine, buzz." Ask the students to begin reciting the numbers or saying "buzz" as you point to each number on the hundreds chart.

Variation: Choose different criteria for saying "buzz". e.g., Any number ending with a 5 or any number beginning or ending with a 3.

STRATEGY 2: Prepare and distribute to each student a blank number chart with boxes for the numbers 1 through 100.

e.g.,



Draw a number chart on the chalkboard. Direct students to fill in the numbers, as selected students recite the numbers, counting by ones. As students complete their charts, do the same at the chalkboard. Select a student to read the numbers, one row at a time.

2.14.01

2.14.01.02 **name the whole number between any two numbers from 0 to 100**

STRATEGY 1: Prepare and display a chart numbered 0 through 100. Attach blank pieces of paper to cover several of the numbers. Say, "I will name two numbers. If you know the number which comes between these numbers, raise your hand." Call out two numbers, e.g., 53 and 55. Ask a student to respond. If the student is correct, he/she may go to the chart and remove the paper covering the number 54. Continue this procedure until all the papers have been removed from the chart.

STRATEGY 2: Say, "We are going to play a game called Name that Number. I will name two numbers and you must name the number that belongs between them. I'm thinking of a number. The number is between 15 and 17. Name that number." Select a student to name the number. Continue this procedure until every student has had a turn.

2.14.01

2.14.01.03 **name the whole number immediately before and immediately after any whole number from 0 to 99**

STRATEGY 1: Prepare and distribute numeral cards numbered 1 to 99. Each student should receive three to four cards. Write 24 on the chalkboard. Say, "The number I have written is 24. Who has a card with the number that comes one before 24? Hold up your card and say the number. Who has the card with the number that comes one after 24? Hold up your card and say the number." Repeat this procedure by randomly selecting other numbers and asking students to show and name the numbers which come one before and one after them.

STRATEGY 2: Prepare and display a hundreds chart with several numbers hidden by blank pieces of paper. Say, "I will give you a clue about a number. Listen carefully and see if you can tell us the number. This number comes one after thirty-seven. Who can tell us the number?" Ask a student to respond and then to check by removing the paper which is hiding 38. Continue giving clues for finding the numbers one before and one after the number you name.

P.O. 2.14.01.01

NAME: ____________________ CLASS; ________ DATE: ________

Count by ones to complete the number chart.

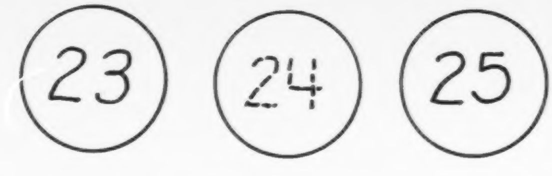
1	2	3	4	5	6	7	8	9	10
	12				16				20
						37			
			54						
							78		
91									

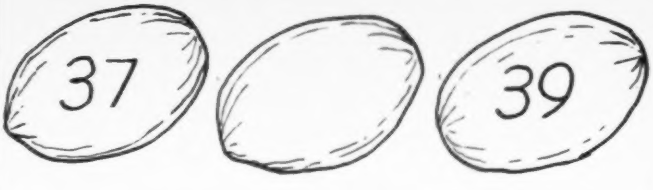
P.O. 2.14.01.02

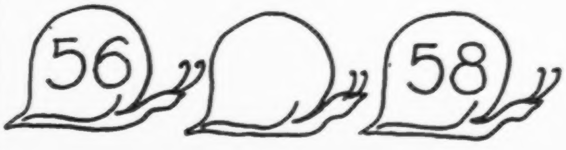
NAME: ______________________ CLASS: ________ DATE: ________

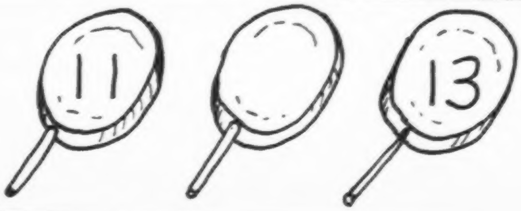
Fill in the missing number in each group of objects.

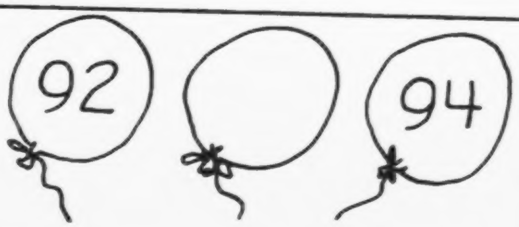
Count by ones.

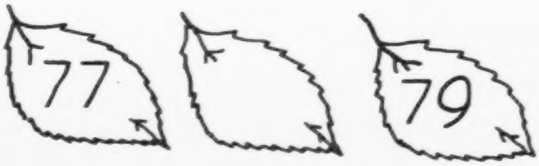


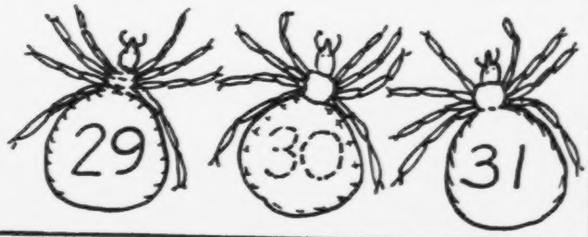


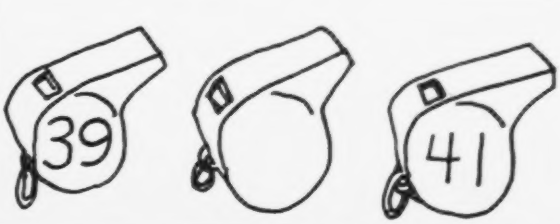


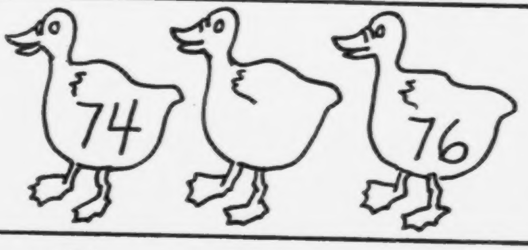


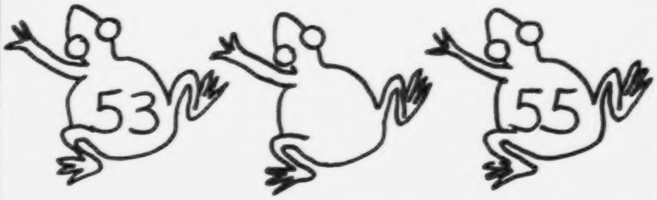


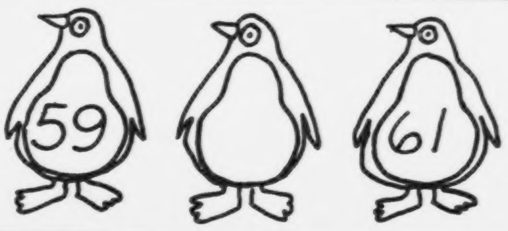


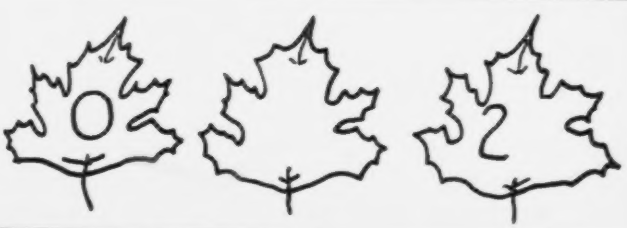










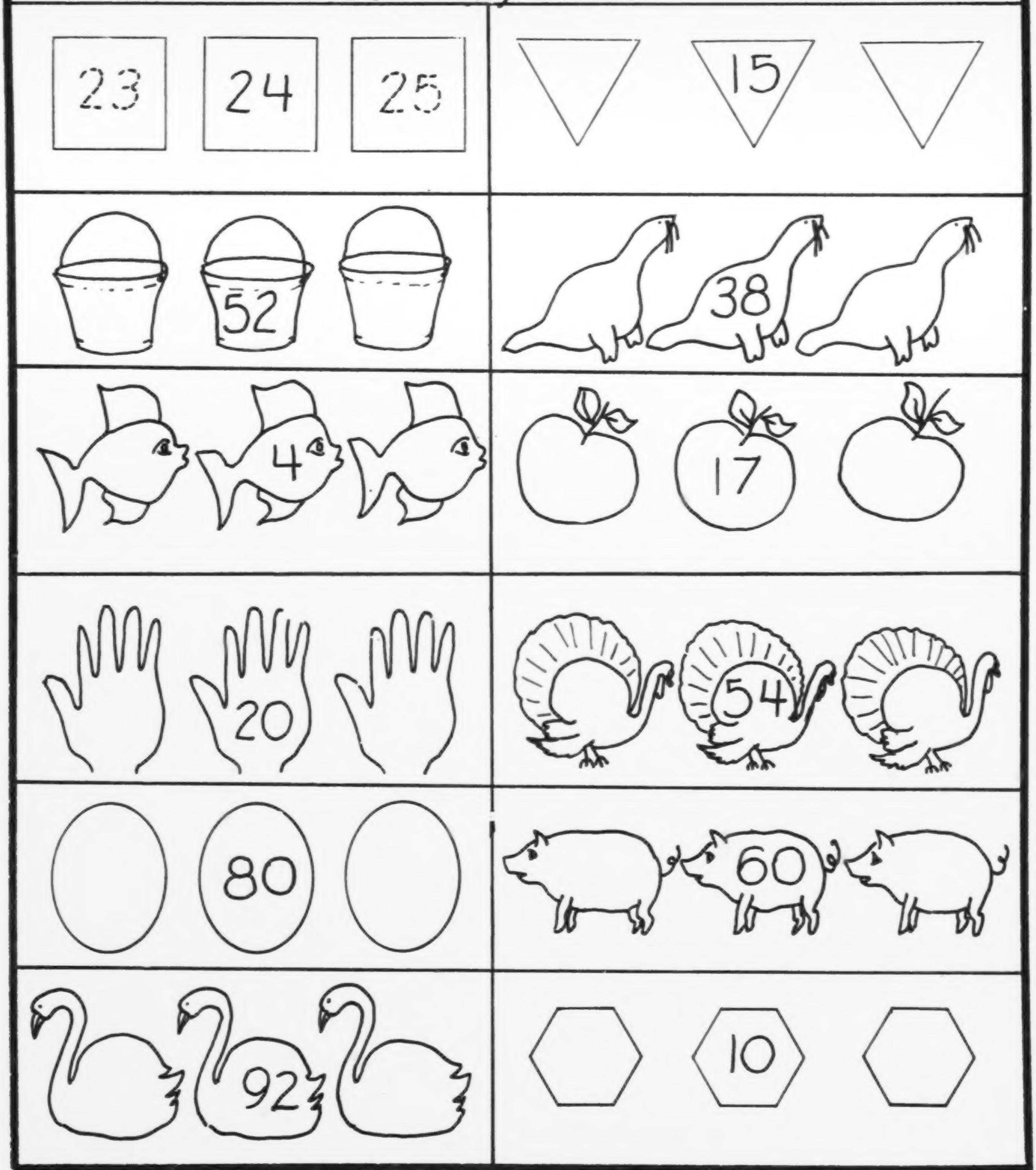


P.O. 2.14.01.03

NAME:________________________ CLASS:________ DATE:________

Write the missing numbers in each group of objects.

Count by ones.



23
24
25
15
52
38
4
17
20
54
80
60
92
10

2.14.02 RECOGNIZE AND NAME WHOLE NUMBERS 10 THROUGH 100 BY TENS

(ongoing)

PERFORMANCE OBJECTIVES

The student will be able to...

2.14.02.01 count forward and backward to 100 by tens;
e.g.,
0, 10, 20,..., 100
100, 90, 80,..., 0

2.14.02.02 name the ten between any two tens from 0 to 100;
e.g.,
70, ____, 90

2.14.02.03 name the whole number ten before and ten after any whole number from 10 to 90.
e.g.,
_____, 30, _____

2.14.02

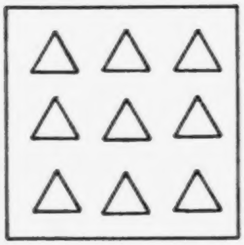
VOCABULARY

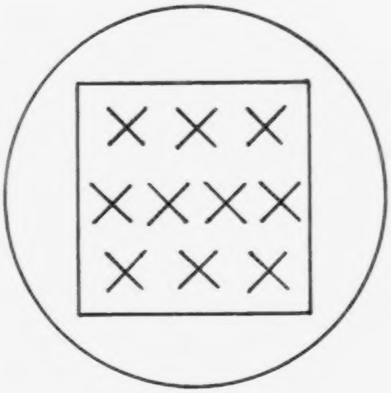
TERMS	SYMBOLS
ten	10
hundred	100
strip	
bundle	

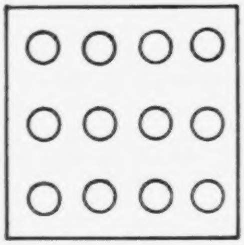
GETTING STARTED

Distribute bundling sticks and rubber bands to each student or group of students. Demonstrate as you say, "Count out groups of ten. Each time you count ten sticks, wrap a rubber band around them to make a bundle." Collect any leftover sticks. Ask each student to tell how many bundles he/she made.

Prepare pictures of sets of varying numbers, including several sets of ten objects. Display the pictures on the chalkboard. Ask students to count the number of objects in each set and to draw a ring around the set if it contains ten objects.
e.g.,





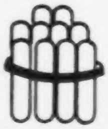


2.14.02

2.14.02.01 **count forward and backward to 100 by tens**

STRATEGY 1: Prepare and distribute 10 bundles of ten sticks to each student or group of students. Ask the students to count the number of sticks in one bundle to verify that each set has ten or represents the number ten.

e.g.,



Say, "Each of us has ten bundles of sticks. We will count by the number of sticks in each bundle." Demonstrate by holding up one bundle and say, "There are ten sticks in this bundle." Hold up another bundle and say, "There are ten sticks in this bundle. Now I have twenty sticks." Show both sets of bundles. Direct the students to place all their bundles on the right side of their desks. Say, "Move your bundles, one at a time, to the left side of your desk. Each time you move a bundle, say the number counting by tens." Count with the students, e.g., ten, twenty, thirty..., until all ten bundles have been counted. Ask for volunteers to be counting leaders as the students recount their bundles.

2.14.02

STRATEGY 2: Prepare and distribute 10 tens strips to each student or group of students. Prepare a demonstration set of tens strips. Say, "Count the number of squares on each tens strip. How many squares are there? Each strip has 10 squares so we call it a tens strip." Display 2 tens strips and ask the students to do the same at their desks. Say, "How many squares are there on 2 tens strips?" Encourage the students to count by ten rather than by the individual ones. Display another tens strip while the students do the same. Say, "Here are 3 tens strips. How many squares are there altogether?" Continue this procedure until all the tens strips have been counted.

2.14.02.02 **name the ten between any two tens from 0 to 100**

STRATEGY 1: Prepare numeral cards, 0 through 100, counting by tens. Place them one behind the other in counting order. Ask the students to recite the numeral on each card as you display them, one at a time. Place the cards along the chalk ledge in counting order so that the numerals are not showing. Say, "I will turn over two cards. As soon as you know which card is between the two cards you see, put your hands on your head." Turn over two cards. e.g.,

$\boxed{30}\ \boxed{}\ \boxed{50}$

2.14.02

STRATEGY 1: cont'd

Ask a student to say the missing number. To check, the student may turn over the card between the two that are showing to see if the response was correct. Hide the numerals by turning the cards over and continue turning two cards at a time until all the "tens between" have been named or until all the students have had a turn.

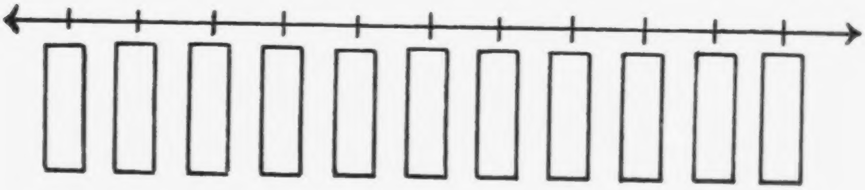
STRATEGY 2:

Divide the class into two teams. Say, "Today we will play a game called 'Name That Ten.' I will name two 'tens neighbors' of the number you must guess. The team to score 10 points first wins. Raise your hand as soon as you know the answer." Name two tens such as 70 and 90. Ask a team to respond. If the team is correct, a point is scored. If the team is incorrect, the other team gets the point. Call out "tens neighbors" until one team has 10 points.

2.14.02.03 **name the whole number ten before and ten after any whole number from 10 to 90**

STRATEGY 1:

Draw a number line on the chalkboard. Draw eleven rectangles underneath the number line. (Note: Rectangles must be evenly spaced.)
e.g.,



STRATEGY 1: cont'd

Prepare eleven oaktag rectangles sized to fit those drawn on the chalkboard. Number the cards from 0 to 100 by tens. Display the cards in counting order as the students read the number on each one. Say, "I am thinking of a number. I will give you clues to guess the number. If you know the number tape it to the proper rectangle on the chalkboard. I will do the first one. My number is ten before 40 I am thinking of 30." Place the card on the 4th rectangle from the left. Say, "Which number is ten after 40?" Ask a student to respond and tape the card in its place on the line. Continue until all the cards have been placed. Remove the cards and begin again giving other clues for the placement of the cards.

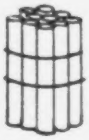
STRATEGY 2:

Prepare three sets of numeral cards numbered 0 through 100 by tens. Shuffle and distribute the cards so that each student has one card. Say, "I will give you a clue about a number. Hold up your card if you think you have the number. My number comes ten after 80. Who has my number?" When the students respond by holding up their cards, ask a student to read the number. Continue this procedure until all the combinations of ten before and ten after have been named.

P.O. 2.14.02.01

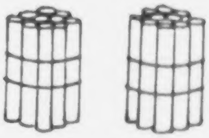
NAME:______________________________ CLASS:_________ DATE:________

Write the number of tens on the line. Write the number showing how many in all in the box.



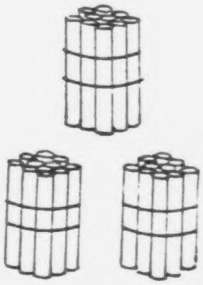
1 ten

10



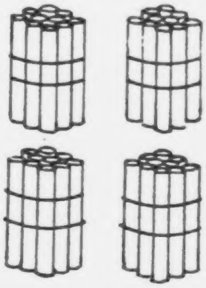
____ tens

☐



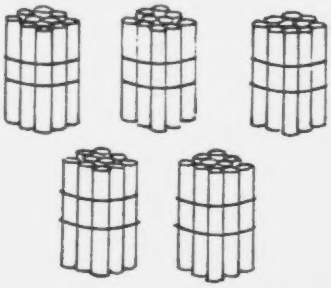
____ tens

☐



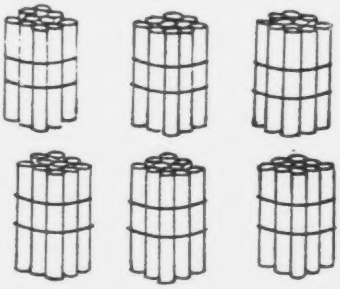
____ tens

☐



____ tens

☐



____ tens

☐

Count forward by tens.

0, 10, 20, ___, ___, ___, ___, ___, ___, ___, 100

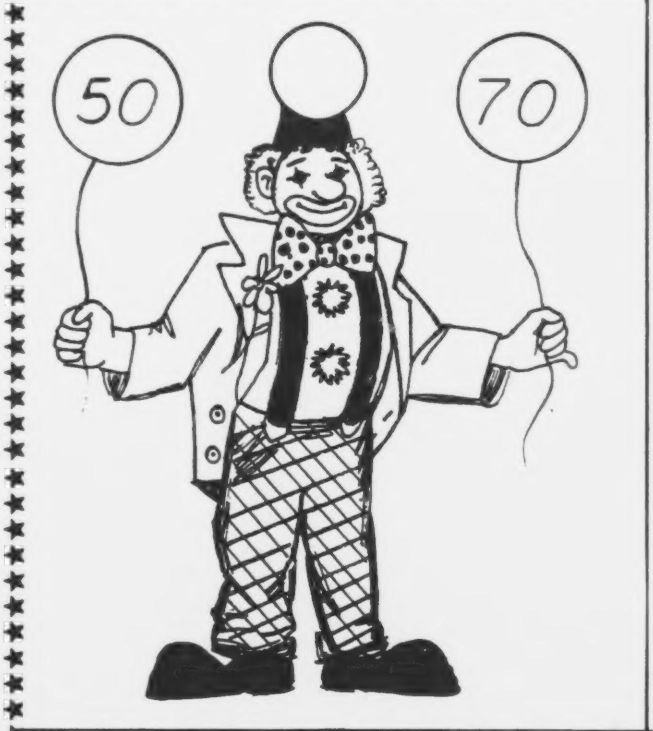
Count backward by tens.

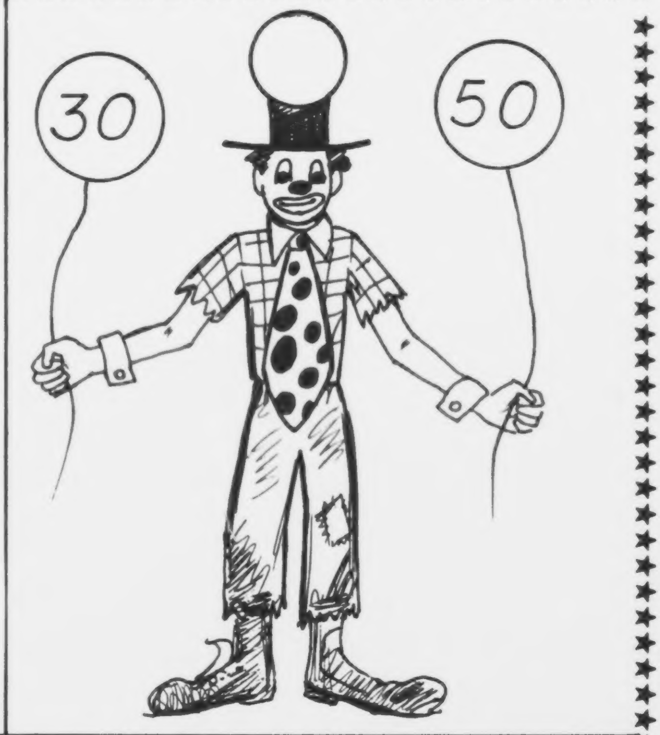
100, 90, 80, ___, ___, ___, ___, ___, ___, ___, 0

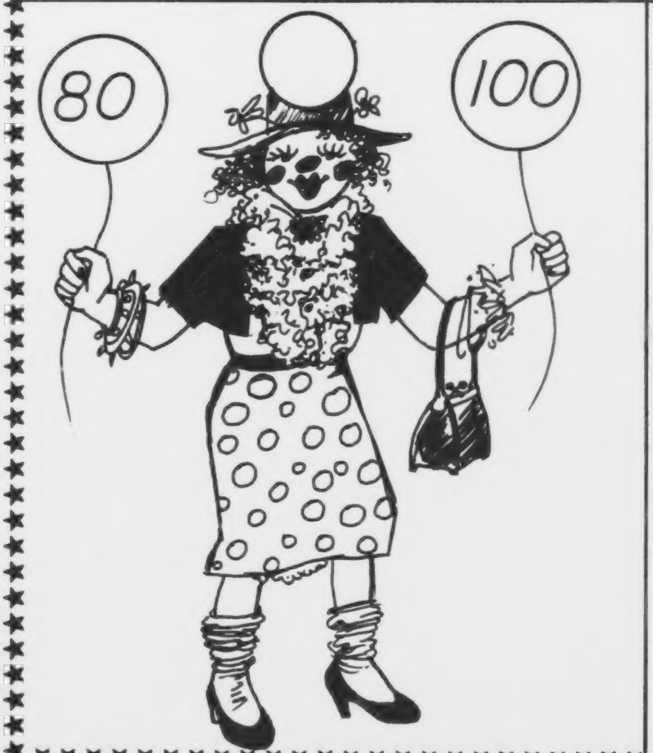
P.O. 2.14.02.02

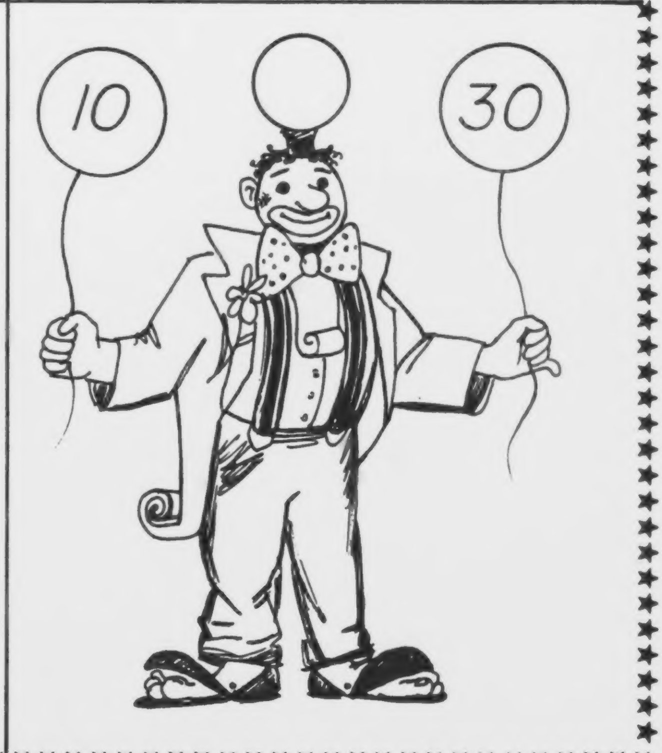
NAME: ______________________ CLASS: __________ DATE: ________

Count by tens. Fill in the missing number on each clown's hat.







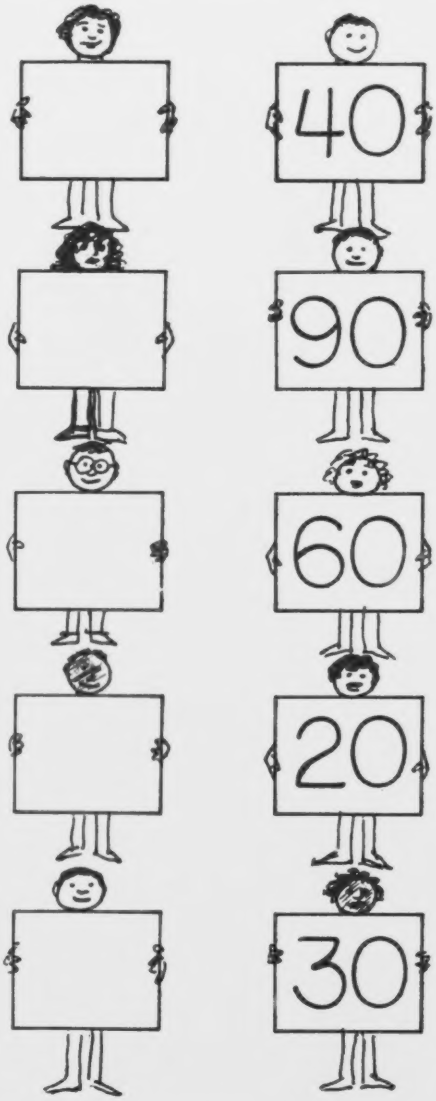


P.O. 2.14.02.03

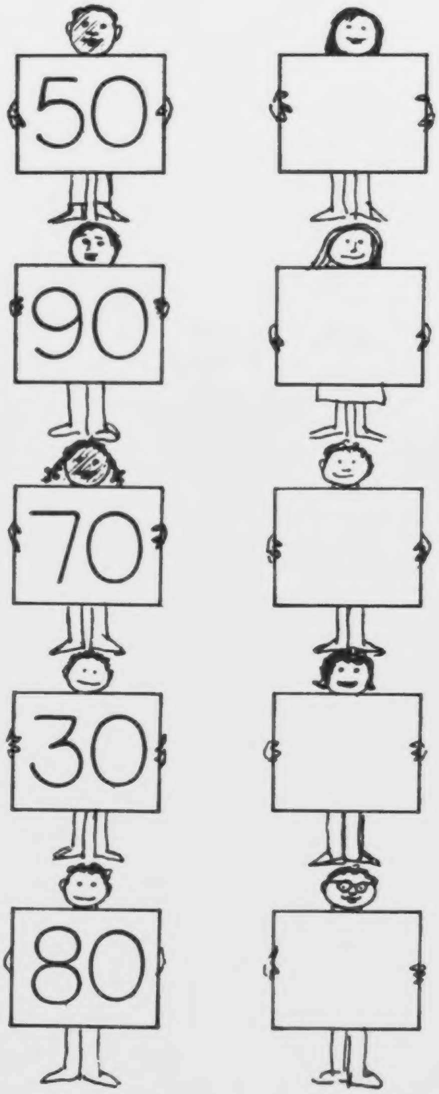
NAME: ______________________ CLASS: ________ DATE: ________

Fill in the missing tens numeral.

What numeral comes ten before the numeral the student is holding?


40
90
60
20
30

What numeral comes ten after the numeral the student is holding?


50
90
70
30
80

2.01.01 COUNT HUNDREDS THROUGH TEN HUNDRED (1000)

(1-2 lessons)

PERFORMANCE OBJECTIVES

The student will be able to...

2.01.01.01B count forward and backward by hundreds through ten hundred (1000);
e.g.,
100, 200, 300, ...
1000, 900, 800, ...

2.01.01.02B write the numbers from 100 through 1000 by hundreds;
e.g.,
100, 200, ... 1000

2.01.01.03A identify and write the hundred that comes between a given pair of hundreds through 1000;
e.g.,
400, ______, 600

2.01.01.04A identify and write the number that comes one hundred before and one hundred after a given number.
e.g.,
______,400,______

2.01.01

VOCABULARY

TERMS	SYMBOLS
thousand	1000
forward	
backward	

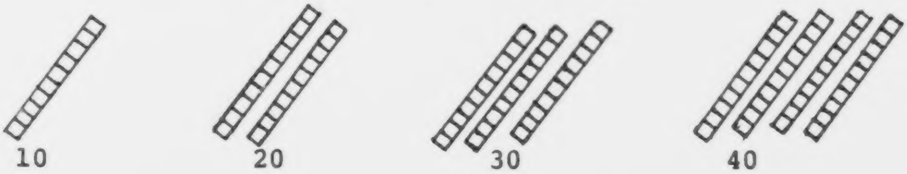
GETTING STARTED

Play Count-Up to review counting by ones through 100. Select a student and say "Count-Up." Ask the student to count aloud starting with 1. When the student reaches 10, say "Stop." Ask another student to continue. When he/she reaches 20, say, "Stop." Ask different students to count each decade until 100 is reached.

Variation: Count-Down may be used to count backward by ones starting with 100.

Display groups of tens strips on the chalkboard. Below each group write the numerals from 10 through 100 in sequence.

e.g.,



Say, "Put your head down on your desk." Erase the numeral below any strip. Say, "Look at the chalkboard. Who can tell us the missing number?"

Repeat this procedure, arranging the numerals backward from 100 to 10 sequentially, e.g., 100, 90,...10. Erase one of the numerals below a strip. Elicit the missing number. Repeat this procedure several times.

2.01.01

2.01.01.01 **count forward and backward by hundreds through ten hundred (1000)**

STRATEGY 1: Prepare 10 hundreds cards. Distribute a sheet of line paper folded in fourths to each student. Demonstrate as you say, "Write the digits 1 through 9 in the second column from the left." Ask several students to read the digits. Say, "Write zeros in the third column to form tens (10, 20,...90). Write zeros in the fourth column to form hundreds (100, 200,...900). Recite the numerals 1 through 9, 10 through 90, and 100 through 900 forward and backward as you fold and unfold the paper to match your count."

Display a hundreds card. Say, "This card represents 100." Display two hundreds cards and say, "What number does this group of cards represent?" (200) Continue this procedure through ten hundreds (1000).

Explain the new place and the need for another column. Say, "Write the number 10 in the first and second columns to write ten hundred. What is another way of saying ten hundred? (one thousand) Let's recite the numbers 100 through 1000 by counting forward and backward."

e.g.,

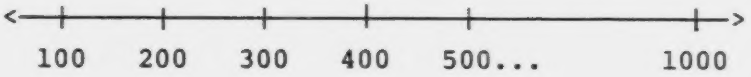
	1	0	0
	2	0	0
	3	0	0
	4	0	0
	5	0	0
	6	0	0
	7	0	0
	8	0	0
	9	0	0
1	0	0	0

2.01.01

2.01.01.02 **write the numbers from 100 through 1000 by hundreds**

STRATEGY 1: Prepare a sheet with scale marks for a number line for each student. Draw a number line on a sentence strip roll and tape it to the chalkboard. Write the numbers 100, 200, 300, 400, 500, 600, 700, 800, 900, 1000 on the number line.

e.g.,



Place a second number line, without numbers, under the first. Ask several students to come to the chalkboard and fill in the numbers on the blank number line. Distribute one sheet with a number line to each student. Say, "Fill in your number line using the numbers 100 through 1000."

2.01.01.03 **identify and write the hundred that comes between a given pair of hundreds through 1000**

STRATEGY 1: Divide the class into several groups. Prepare and distribute two sets of oaktag cards, one white and one yellow, for each group. Each card should name a multiple of one hundred.

e.g.,

$\boxed{100}$ $\boxed{200}$ $\boxed{300}$ ... $\boxed{1000}$

Say, "Each group will prepare an American cheese sandwich. The cheese (yellow cards) must be placed between two slices of bread (white cards)." Call out two multiples of one hundred. e.g., 100 and 300. Ask only bread holders to stand from each group. Ask the student with the yellow card that "fits in the sandwich" (200) to stand between the "bread".

e.g.,

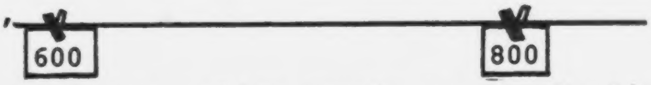
$\boxed{100}$	$\boxed{200}$	$\boxed{300}$
White	Yellow	White

2.01.01

STRATEGY 1: cont'd Ask a student to write the number sequence on the chalkboard. Continue this procedure using other number combinations.

STRATEGY 2: Prepare and distribute eight blank oaktag cards and a clothespin to each student or group of students. Hang a clothesline across the front of the room. Say, "Today we will be detectives and solve the case of the missing towels. Every day Mrs. Smith hangs out some towels to dry and the middle towel always seems to disappear. We will help Mrs. Smith get her towels back." Hang up two cards showing multiples of one hundred on the clothesline, leaving a space between them.

e.g.,



Say, "Let's see which towels are on the line so we'll know which one is missing. Which number is missing? (700) Write the numeral for seven hundred on one of your cards." Ask a student to hang the 700 card in its place on the clothesline. Continue this procedure until all combinations have been made and all the multiples of one hundred through one thousand have been written.

2.01.01.04 **identify and write the number that comes one hundred before and one hundred after a given number**

STRATEGY 1: Place a flannelboard on the chalkboard ledge. Place flannel-backed cards, numbered 100 through 1000, in a pile near the flannelboard. Mix the cards. Ask a student to find and place the number

STRATEGY 1: cont'd

you call out on the flannelboard. (300) Ask another student to find the number that comes before that number and place it on the flannelboard in the correct position, e.g., 200, 300. Ask another student to find the number that comes after the given number and place it on the flannelboard in the correct position, e.g., 200, 300, 400.

Repeat this procedure using other number combinations.

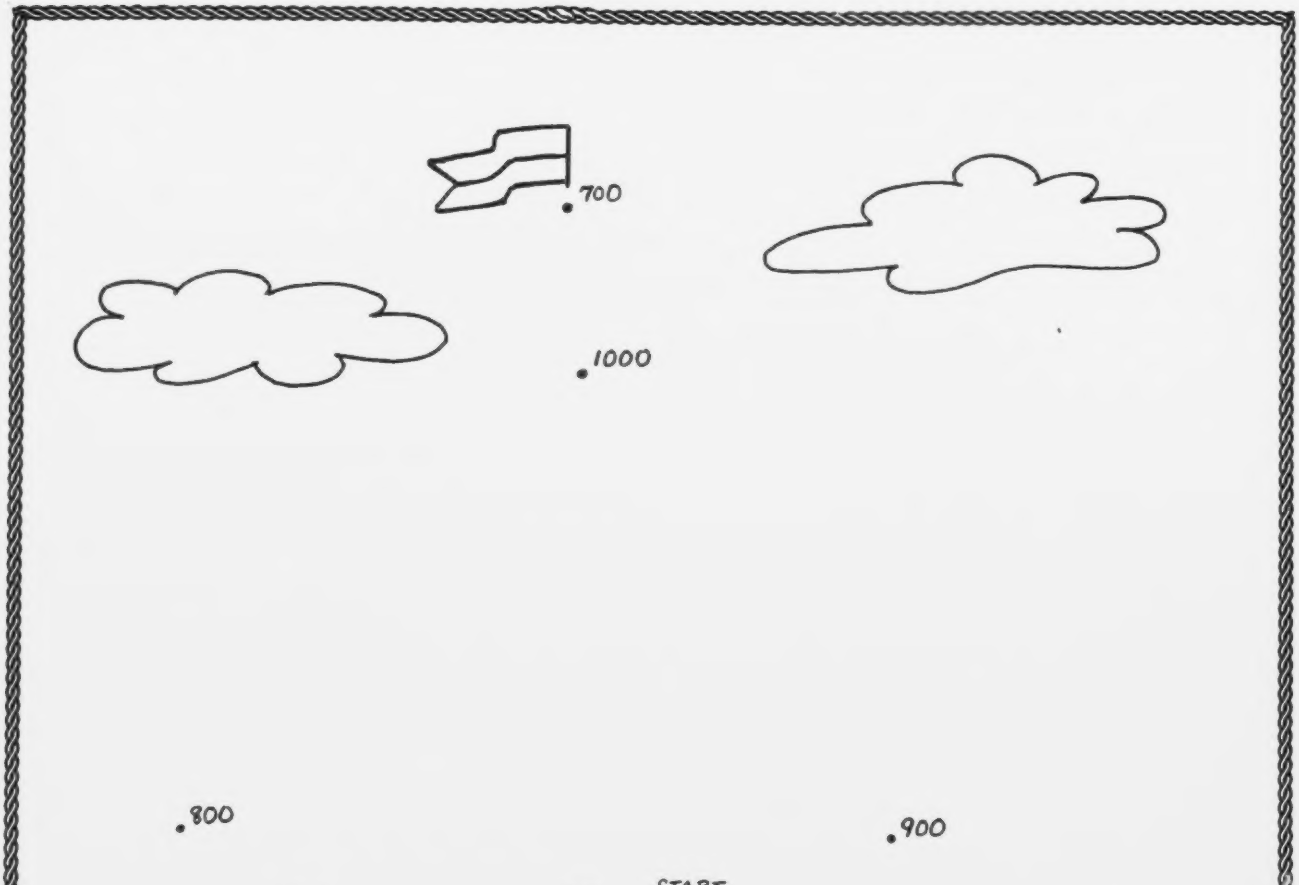
STRATEGY 2:

Divide the class into two teams. Line up each team with one student behind another or next to each other. Say, "We will play the game, I Am Thinking of a Number. I will give you a clue.
The first student from each team writes the answer and goes to the end of the line. If the answer is correct, the team who wrote it gets a point. If it is not correct, the other team will score a point. The first team to score 10 points wins. Let's begin. I am thinking of a number which comes one hundred after 300." (400) Keep a tally for each team. Continue the game using clues of "one hundred before" as well as "one hundred after".

P.O. 2.01.01.01

NAME:______________________________CLASS:__________DATE:________

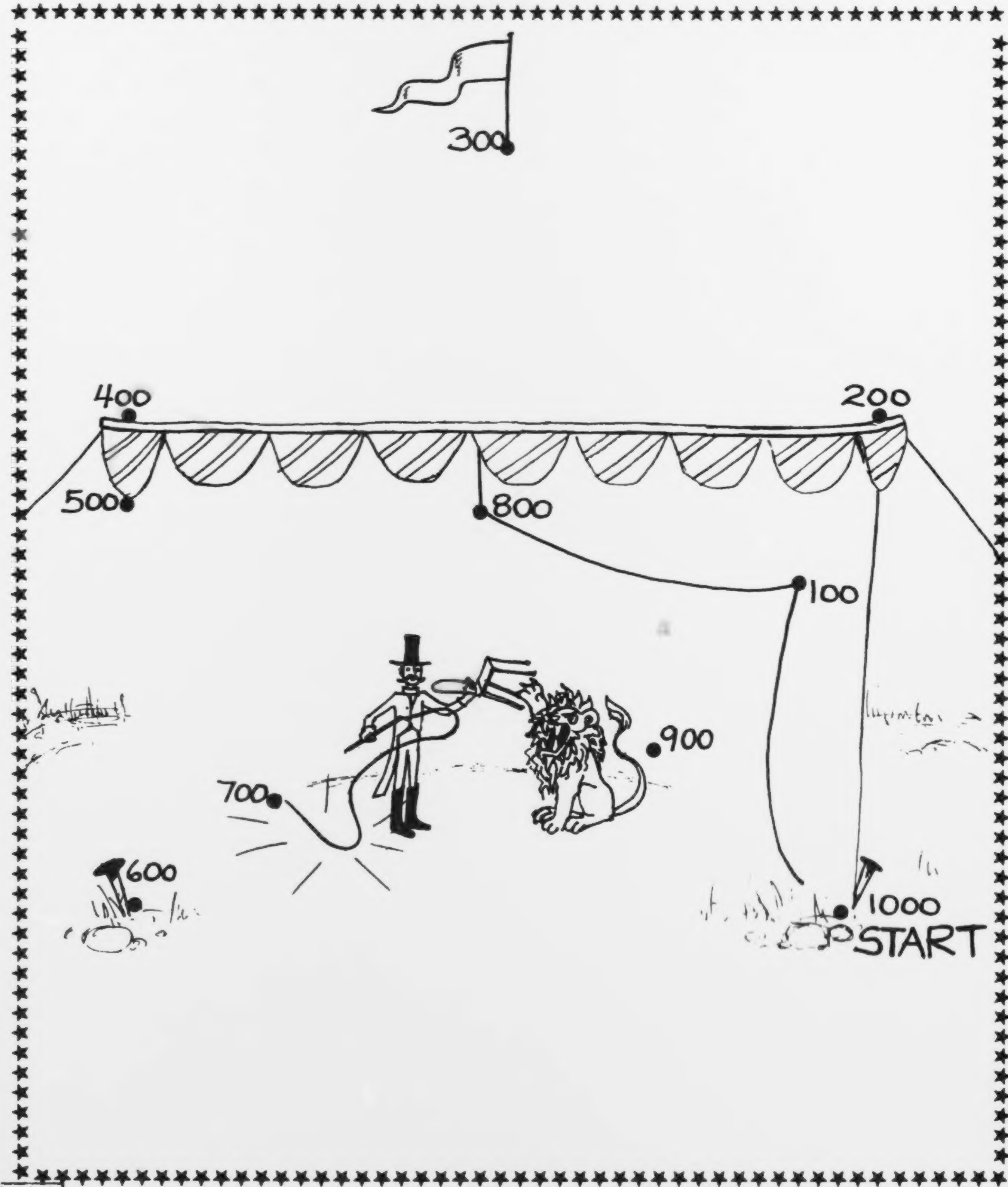
Connect the dots in order. Start at 100. Count by hundreds. End at 1000. What picture have you formed?


700
1000
800
900
START
600
100
500
200
400
300

P.O. 2.01.01.01

NAME: ______________________ CLASS: __________ DATE: ________

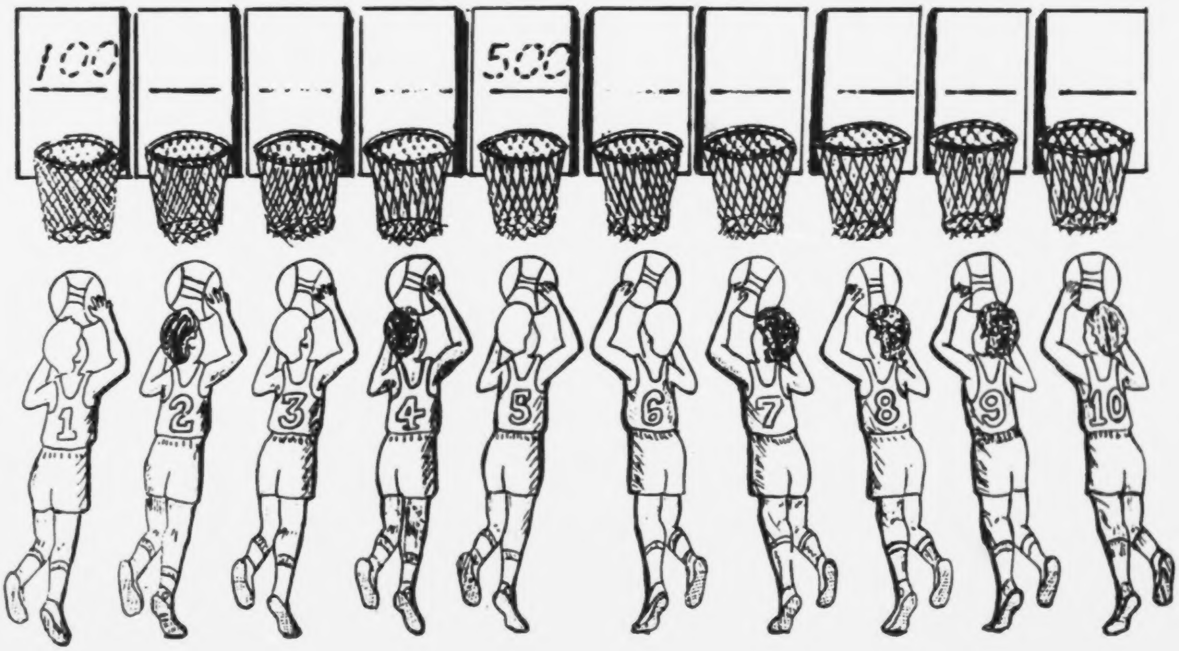
Connect the dots in order. Start at 100. End at 1000.
What picture have you formed?


300
400
200
500
800
100
900
700
600
1000
START

P.O. 2.01.01.02

NAME: ______________________ **CLASS:** __________ **DATE:** ________

Write the missing numbers on the scoreboard.


100
500
1
2
3
4
5
6
7
8
9
10

Finish the count:

100, ______, ______, ______, ______,

______, ______, ______, ______, ______.

Can you now count backwards?

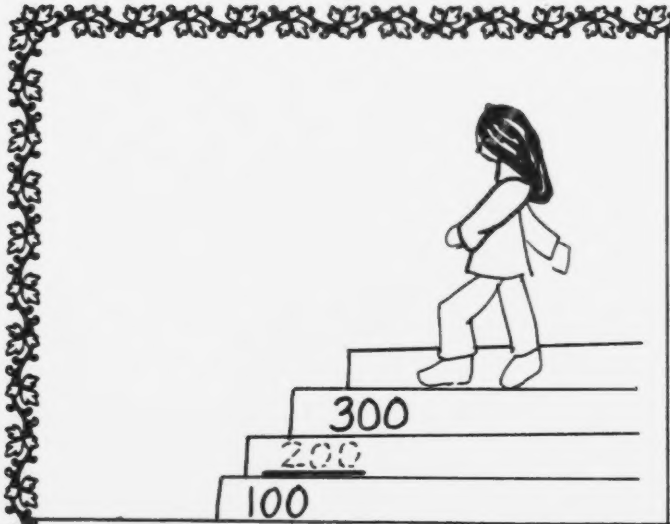
1000, ______, ______, ______, ______, ______,

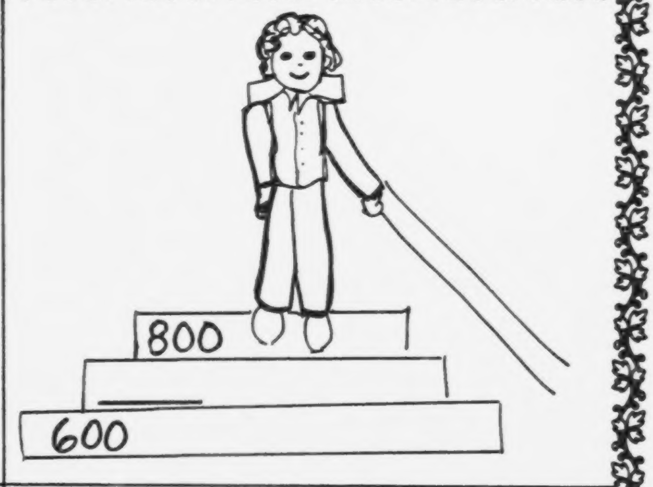
______, ______, ______, ______.

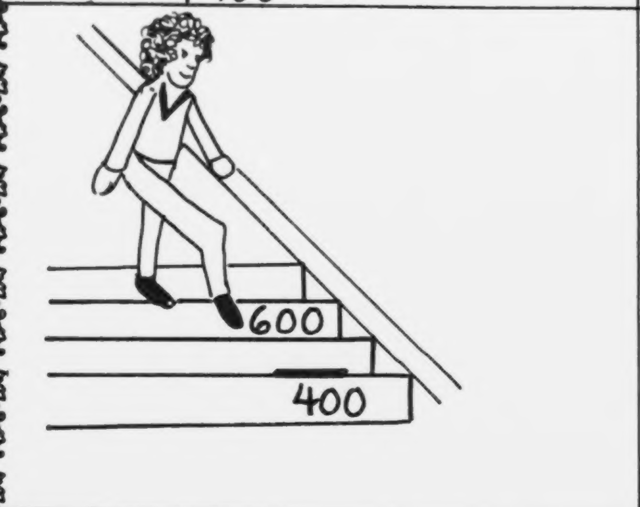
P.O. 2.01.01.03

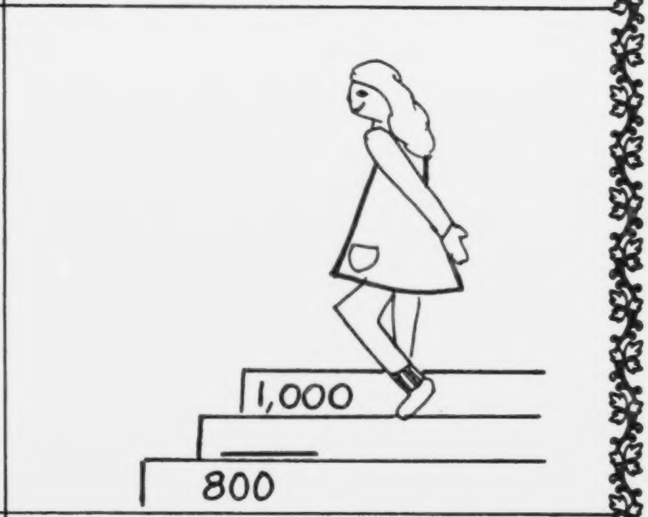
NAME:____CLASS:__________DATE:________

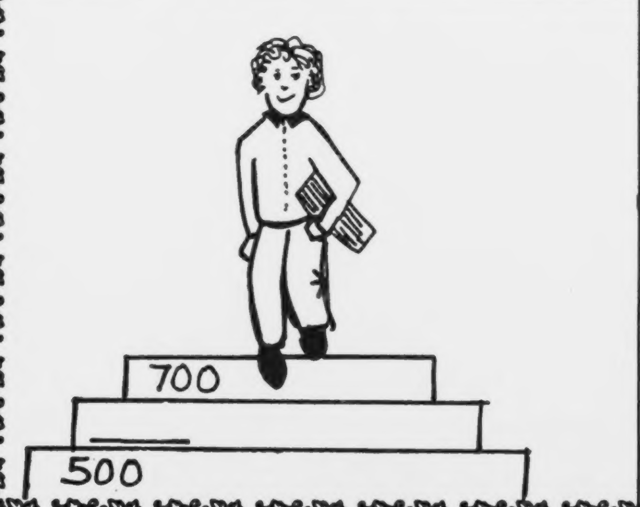
Write the number which belongs on each empty step.

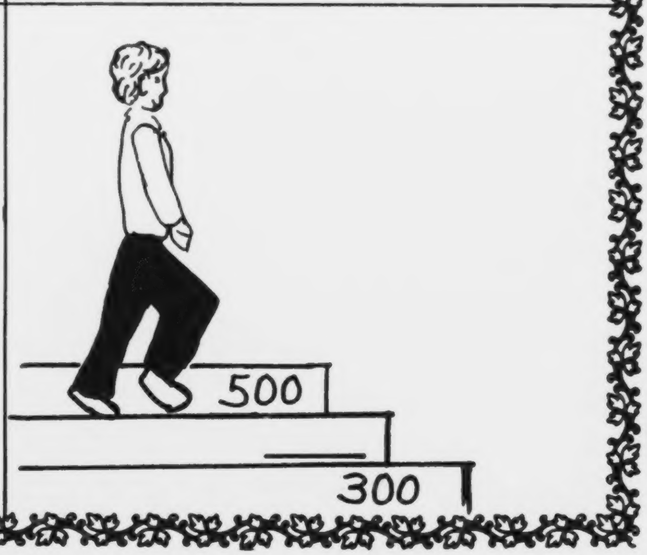








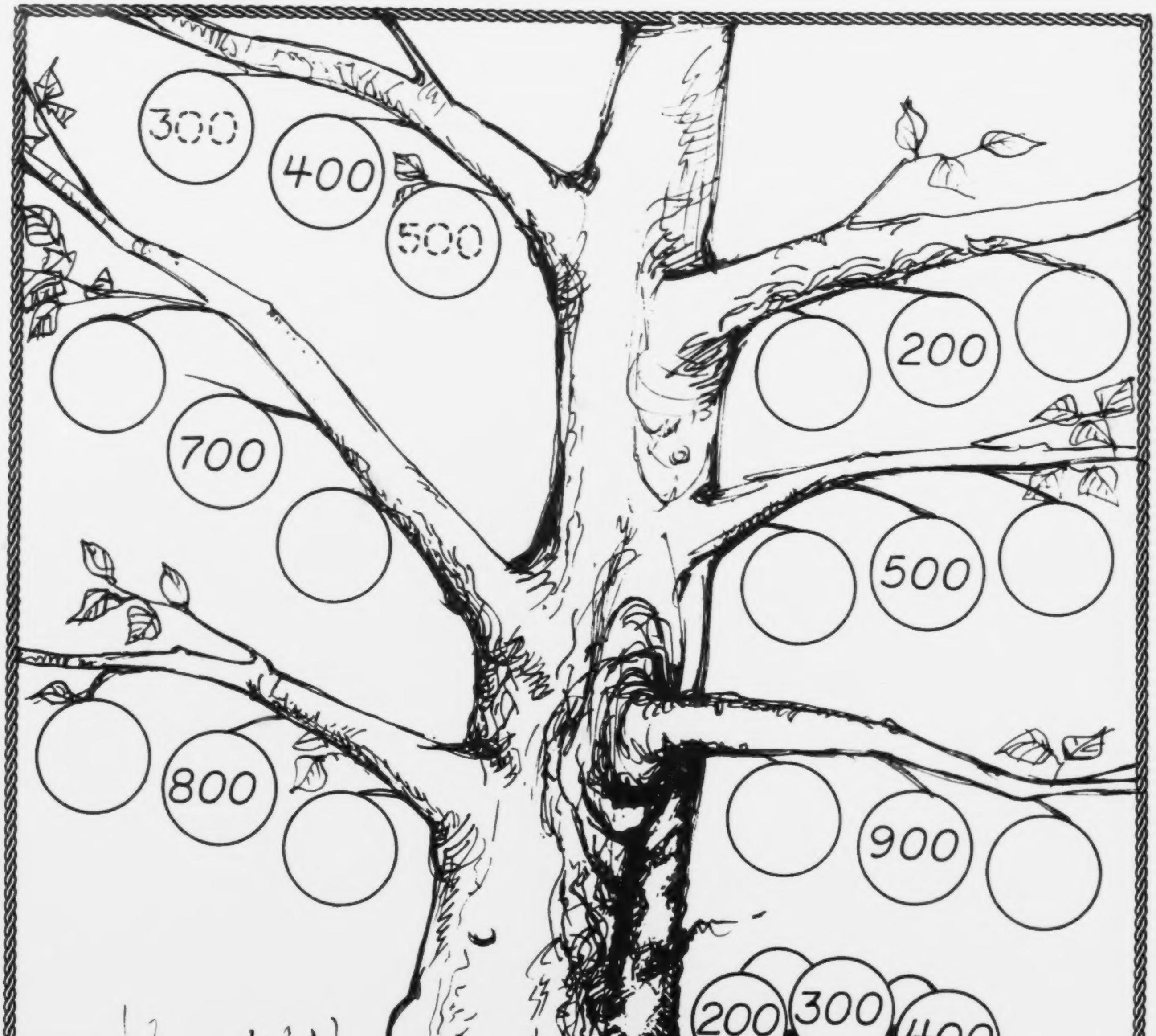




P.O. 2.01.01.04

NAME: ______________________ CLASS: __________ DATE: ________

Count by hundreds. Write a number in each circle to complete each number pattern.


300
400
500
700
800
200
500
900
200
300
400

Unit 5

2.01.02 READ AND WRITE STANDARD NUMERALS (100 through 1000)

(1-2 lessons)

PERFORMANCE OBJECTIVES

The student will be able to...

2.01.02.01B count and write numbers forward and backward through 1000 without bridging the hundreds; e.g.,

101, 102, 103, ...
103, 102, 101...

2.01.02.02A identify and write the number that comes exactly between a given pair of numbers through 1000; e.g.,

413, _____, 415

2.01.02.03A identify the number that comes one before and one after a given number through 1000; e.g.,

_____, 853, _____

2.01.02.04B count forward and backward by ones bridging the hundreds (99 through 1000). e.g.,

299, 300, 301, ...
301, 300, 299, ...

2.01.02

VOCABULARY

TERMS

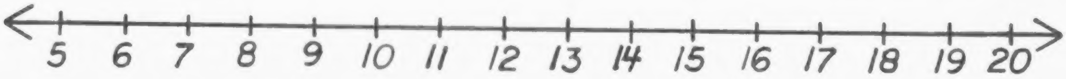
forward
backward
one before
one after
between

GETTING STARTED

Prepare 100 counters, e.g., cubes or lima beans. Ask ten students to stand. Say, "How many students are standing? (10) Who can count them?" After the correct response has been given, ask a student to write the numeral 10 on the chalkboard. Ask another student to count out ten objects.

Repeat this procedure using other numbers.

Prepare magnetic discs. Draw a number line on the chalkboard showing several numbers in sequence between 0 and 99.
e.g.,



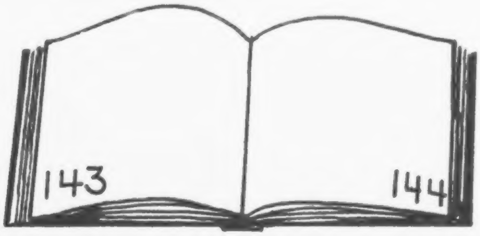
Divide the class into two groups, (A and B). Ask a student from Group 'A' to come to the chalkboard. Say, "Place the yellow disc on the number that is one more than 11." If the student places the disc correctly, score a point for his/her team. Ask that student to be seated. Ask a student from team 'B' to come to the chalkboard. Repeat this procedure using other clues to find the number, e.g., the number between 16 and 18, the number before 9. Continue until all students have had a turn. Determine the winner by tallying the scores for each team.

2.01.02

2.01.02.01 **count and write numbers forward and backward through 1000 without bridging the hundreds**

STRATEGY 1: Say, "Today we are going to count numbers forward and backward. When would we need to count backward? (counting the number of days to a holiday, time remaining in a game, countdown for a rocket launch) Let's countdown for a make-believe rocket launch. Begin the countdown, counting backward from 15, as I write the numerals on the chalkboard." Ask several students to repeat the countdown both forward and backward. Say, "If you open a textbook to page 143, what page comes next? (144) Now open your mathematics book to page 143 and check to see if you were correct."

Draw two book pages on the chalkboard.
e.g.,



Say, "Copy the numbers that are on these pages. Write the next three page numbers counting forward." Demonstrate by writing on the chalkboard.
e.g.,

143, 144, 145, 146, 147

2.01.02

STRATEGY 1: cont'd

Say, "Which three page numbers come just before page 143? Write these numbers on your paper." Demonstrate by writing on the chalkboard.

e.g.,

$\underline{140}$, $\underline{141}$, $\underline{142}$, 143

Repeat this procedure using other numbers.

STRATEGY 2:

Prepare and distribute a set of randomly numbered cards which include numbers from 100 through 1000. Be sure to have at least one card for each student in your class. Say, "Take out your notebook and copy the number that is on your card. Write the next three numbers counting forward and the next three numbers counting backward." **Note:** Do not include numbers that would force students to bridge the hundreds.

e.g.,

$\boxed{252}$, $\boxed{487}$, $\boxed{641}$ ...

Ask the students to exchange cards, repeat this procedure and compare answers.

2.01.02.02 **identify and write the number that comes exactly between a given pair of numbers through 1000**

STRATEGY 1:

Make packs of cards with three cards in each pack, numbered sequentially, one number per card so that each student can be given one card.

e.g.,

$\boxed{254}$, $\boxed{255}$, $\boxed{256}$

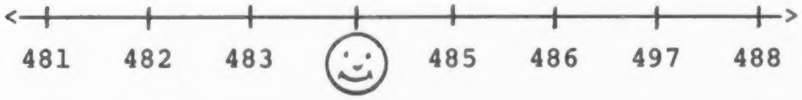
STRATEGY 1:
cont'd

Include numbers through 1000. Not all numbers must be included. Give each student one card. Say, "I am going to call out two numbers. The holders of these numbers will come to the front of the room, face the class, and leave a space between them. The holder of the missing number will come to the front of the room, stand in the empty space, and face the class." The students will then say their numbers and write them sequentially on the chalkboard.

Repeat this procedure using other prepared packs of cards.

STRATEGY 2:

Draw a number line on the chalkboard with a happy face card covering the number 484.
e.g.,



Divide the class into two groups, A and B. Ask the first student in group A to stand at the front of the room facing the class. Ask another student in group A to provide the first student with a clue as to which number is covered by the happy face card. Say, "You may give a clue or hint but you may not say the number. For example, the number comes exactly between 483 and 485. If the first student knows the number, he/she scores a point for team A. He/she writes the number and sits. If the first student does not know the number after the clue, he/she sits down and the other team plays. The other students will write the hidden number in their notebooks."

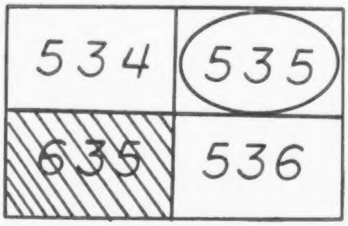
Repeat this procedure using other numbers.

2.01.02

2.01.02.03 **identify the number that comes one before and one after a given number through 1000**

STRATEGY 1: Prepare packs of numeral cards in three number sequences, e.g., $\boxed{564}$, $\boxed{565}$, $\boxed{566}$, so that each student in the class has at least one card. Ask the student with the number 565 come to the front of the room and display the number? Say, "Which numbers come one before and one after 565? (564 and 566) 564 and 566 are 'number buddies' to 565." Ask the 'number buddies' to stand to the right and to the left of the student displaying 565. Repeat this procedure using other numbers.

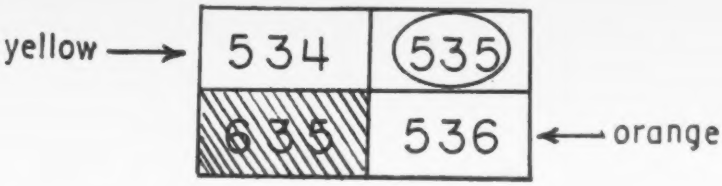
STRATEGY 2: Prepare an orange, black and yellow crayon or marker. Prepare and display several square cards divided into fourths which show four numbers on each card: a circled number, the number before it, the number after it, and an unrelated number. e.g.,



Say, "How many numbers does each card have? (4) How many numbers are circled? (1) Which number on the

STRATEGY 2: cont'd

card comes one before the circled number?" (534) Ask a student to color that box yellow.
e.g.,



Say, "What number on the card comes one after the circled number?" (536)

Ask a student to color that box orange. Say, "The last box does not belong with the other numbers. Shade it black."

Repeat this procedure using other number sequences.

2.01.02.04 **count forward and backward by ones bridging the hundreds (99 through 1000)**

STRATEGY 1: Prepare and display the following chart.
e.g.,

190	191	192	193	194	195	196	197	198	199
200	201	202	203	204	205	206	207	208	209
390	391	392	393	394	395	396	397	398	399
400	401	402	403	404	405	406	407	408	409

Ask the students to count forward from a given number (194) to the end of that line.

Say, "What number comes after 199?" (200) Ask the students to continue counting. (201, 202, 203,...)

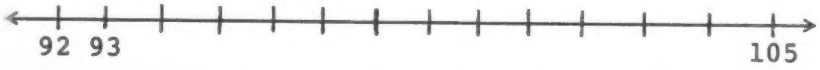
STRATEGY 1: cont'd

Repeat this procedure with the next sequence, and ask the students to count five numbers forward. Repeat with other numbers in these sequences and higher sequences making sure to bridge the hundreds. Repeat this procedure counting backward.

STRATEGY 2:

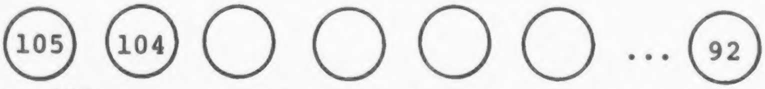
Display a number line on the chalkboard beginning with the numbers 92 and 93 allowing enough points to continue the line to 105.

e.g.,



Say, "Today we are going to do some counting by ones. Let's pretend we have begun counting and have reached the numbers placed on this number line. What numbers begin this number line? (92 and 93) What number would come next? (94) Let's count together." As the students count write the numbers on the number line. After the students complete this number line, display a row of circles. Begin to write the numbers in backward order placing numbers in the first two circles, and the last circle.

e.g.,



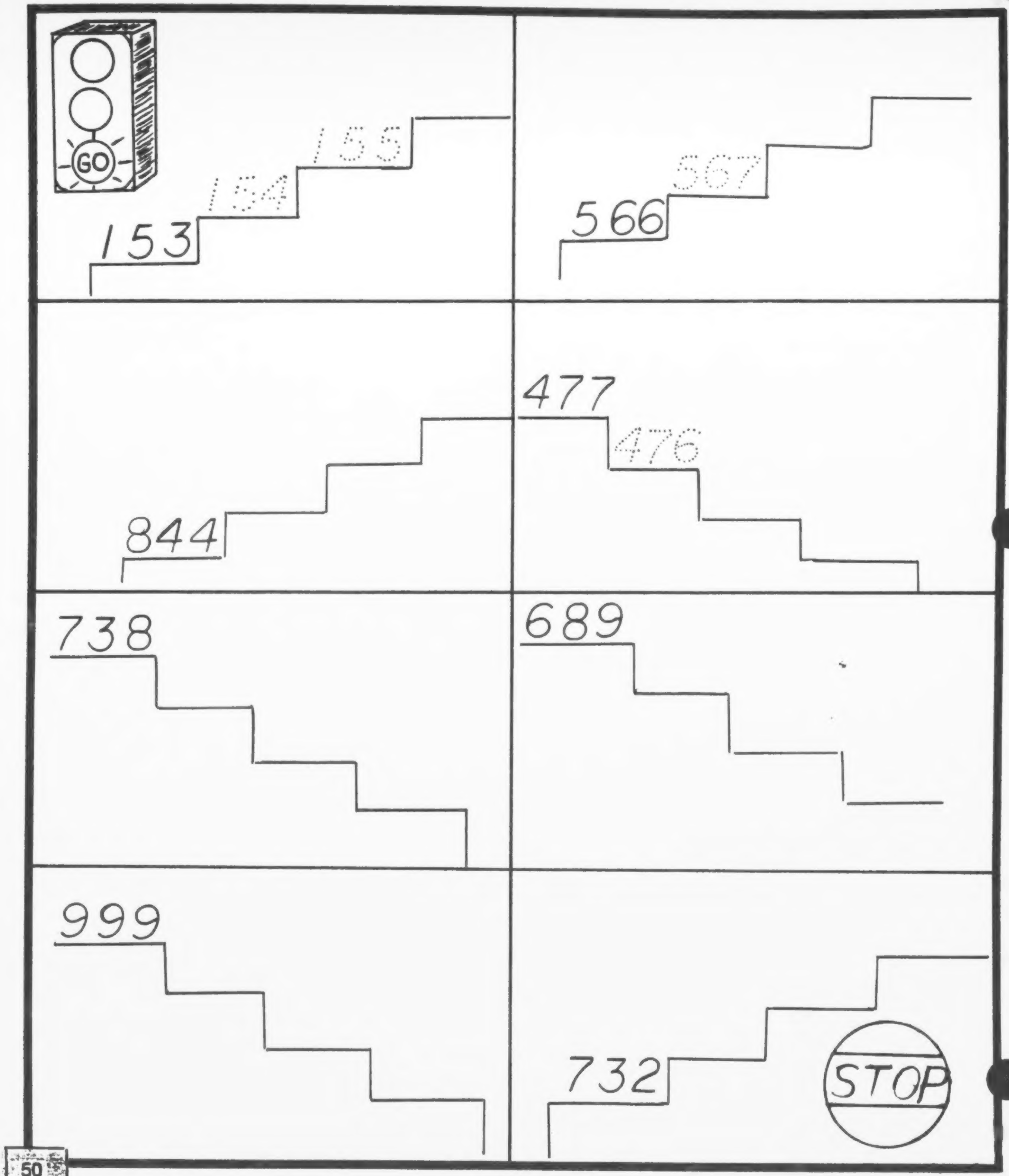
Say, "We will now count backward and write the missing numbers in the circles. What numbers come next?"

Repeat this procedure for bridging other hundreds counting by one forward and backward.

P.O. 2.01.02.01

NAME: ______________________ CLASS: ________ DATE: ________

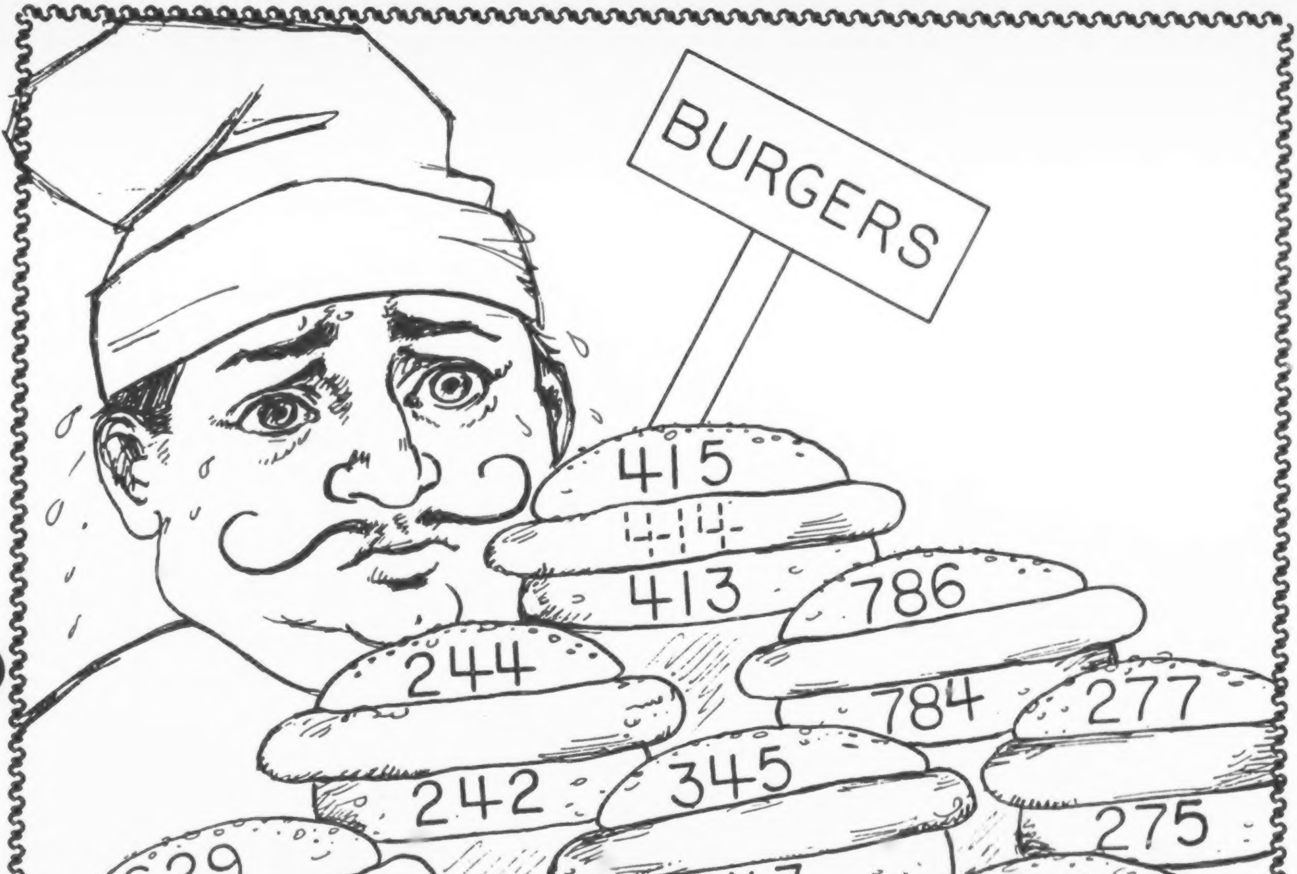
Fill in the missing numbers. Count forward going up the stairs. Count backward going down the stairs.


GO
153
154
155
566
567
844
477
476
738
689
999
732
STOP

P.O. 2.01.02.02

NAME: ______________________ CLASS: ________ DATE: ________

Can you make a number burger? Fill in the missing numbers.


BURGERS
415
414
413
786
784
244
242
277
275
345
343
629
627
204
202
539
537
399
397
362
360

P.O. 2.01.02.03

NAME:______________________________ **CLASS:**__________ **DATE:**________

Look at the number in the circle. Find the box with the number which comes one before the number in the circle. Color it yellow. Find the box with the number which comes one after the number in the circle. Color it red. Shade the box that does not belong.

A.

852	853
▨ 753	854

B.

435	533
535	534

C.

298	299
297	279

D.

635	734
634	633

E.

271	272
282	273

F.

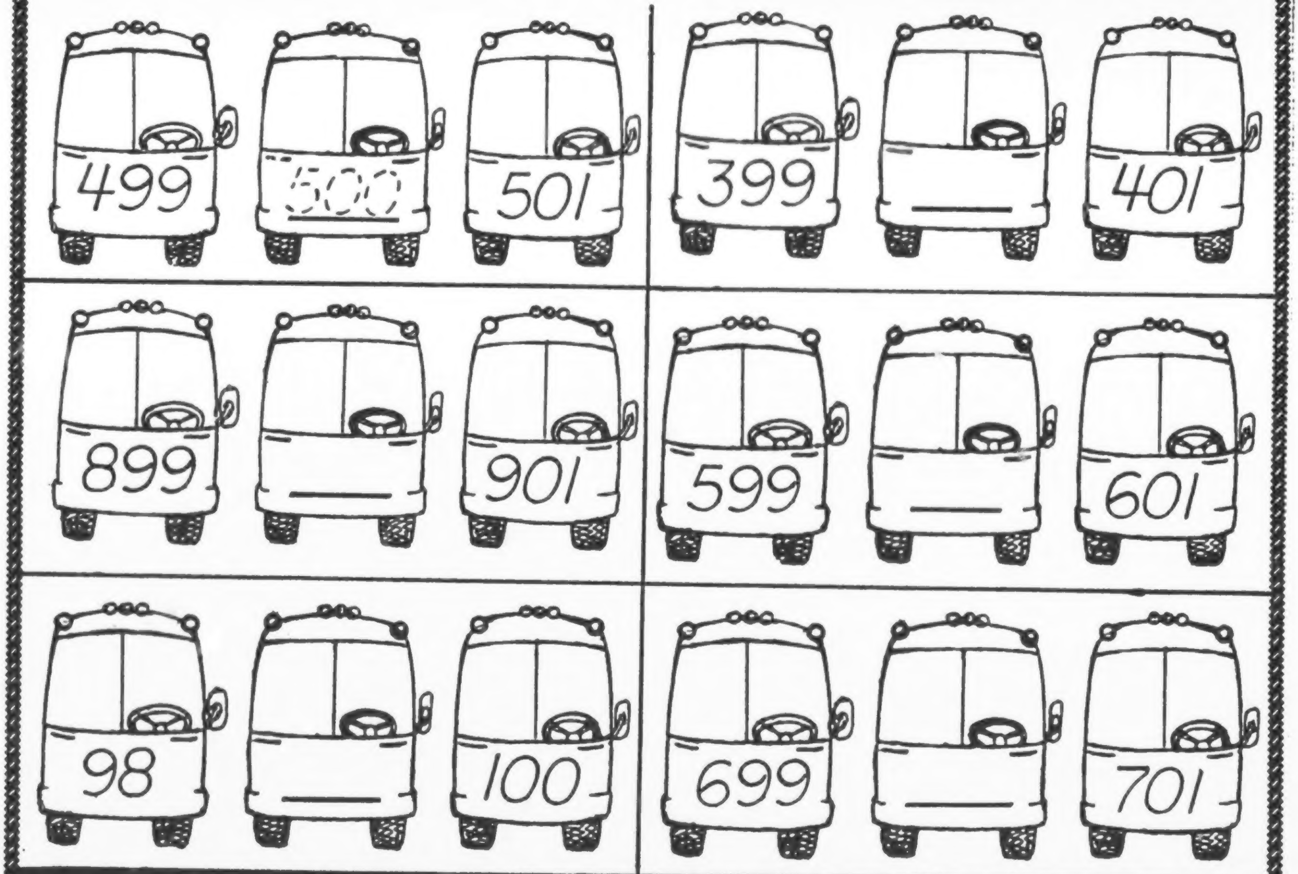
461	462
460	463

P.O. 2.01.02.04

NAME:______________________________ CLASS:__________ DATE:________

Follow the directions for each part.

Number the buses so that they are in counting order.


499
500
501
399
____
401
899
____
901
599
____
601
98
____
100
699
____
701

Count backward to complete the number sequences below.

501, 500, 499

301, ____, 299

401, ____, 399

202, ____, ____, 199

702, ____, ____, 699

601, ____, ____, 598

Unit 6

2.01.03 COUNT BY TENS AND FIVES TO 1000

(2 lessons)

PERFORMANCE OBJECTIVES

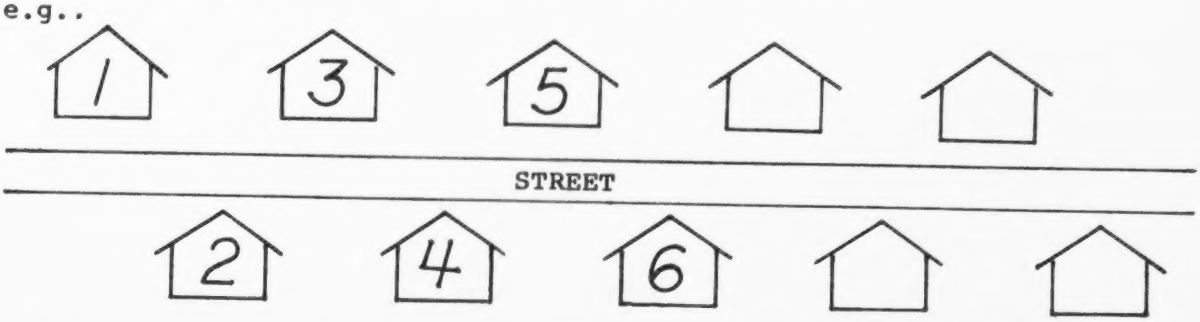
The student will be able to...

*2.01.03.01A	count and order numbers 50 through 100 by tens; e.g., 50, 60, 70 ... 100
*2.01.03.02A	write numbers 50 through 100 by tens; e.g., 50, 60, 70, ... 100
*2.01.03.03A	count and order numbers 100 through 1000 by tens; e.g., 100, 110, 120, ... 1000
*2.01.03.04A	write numbers 100 through 1000 by tens; e.g., 100, 110, 120, ... 1000
*2.01.03.05A	count and order numbers 0 through 1000 by fives; e.g., 0, 5, 10, ... 1000 110 105 115 100 100, 105, 110, 115
*2.01.03.06A	write numbers 0 through 1000 by fives. e.g., 100, 105, 110, ... 1000

GETTING STARTED

Prepare and display a set of "house" cards numbered 1 through 20. Say, "Watch as I place these houses on the chalkboard in a special way." Tape the houses on both sides of the "street."

e.g..

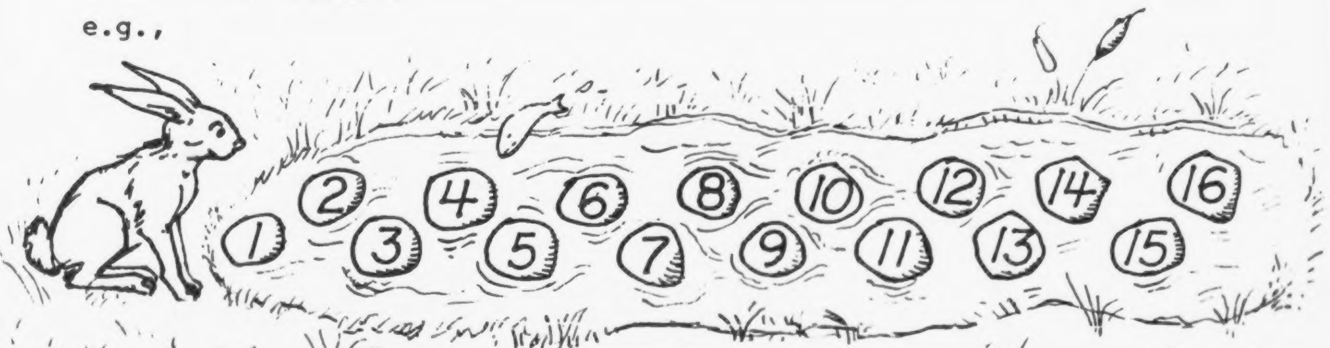


Point to the numbered houses in the top row and say, "These houses are numbered 1, 3 and 5. What do you think the next house should be numbered?" (7)

Repeat this procedure until all the houses are numbered. Say, "How are the numbers in each row of houses alike?" (The houses on each side of the street are numbered by twos and the top row has odd numbers and the bottom row has even numbers.)

Prepare a rabbit and a set of "rocks" numbered 1 through 20. Say, "I am going to place the 'rocks' across the chalkboard 'stream' so that our friend, Two-Hop Rabbit, can hop to his home on the other side of the stream."

e.g.,



GETTING STARTED cont'd

Demonstrate as you say, "Remember, his name is Two-Hop because he always hops two rocks (spaces)." Begin at zero, hop to 2, then to 4 and say, "To which 'rock' will he jump next?" Continue this hopping (counting) to the other side of the stream as students recite the numbers aloud.

Repeat this procedure by placing the rabbit on the 'rock' numbered 1. Ask a student to "two-hop" him across the stream as the other students recite the numbers aloud.

2.01.03

2.01.03.01 **count and order numbers 50 through 100 by tens**

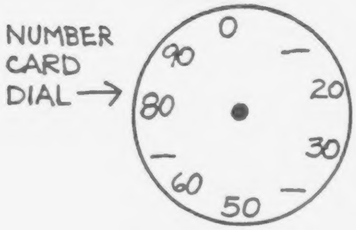
STRATEGY 1: Prepare and display a hundreds chart and ten plastic bags with ten chips in each bag. Ask a student to count out 70 chips by tens as you point to the numbers on the hundreds chart.

Repeat this procedure for counting by tens through 100 as a student circles the number on the hundreds chart which is the same as the number of chips counted aloud. Say, "In which column are the numbers circled? Start at the top and read all the circled numbers to 100. How many chips are there altogether?"

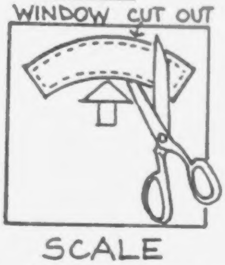
STRATEGY 2: Prepare pictures of animals and a "scale" with a window which shows multiples of ten with several of the multiples missing. Fasten the number dial behind the window.

e.g.,

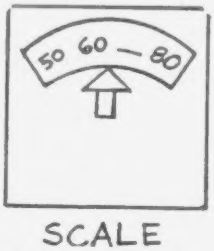
Step 1



Step 2



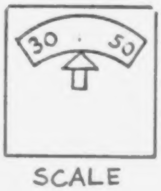
Step 3



Say, "This scale, which counts by tens, used to be in a veterinarian's office but it is no longer there because of its missing numbers."

Display a picture of a dog. Move the number card dial so the arrow on the scale is pointing between 30 and 50.

e.g.,



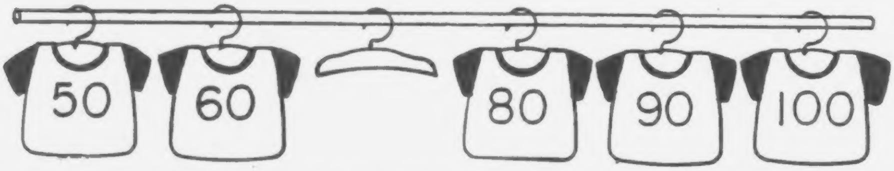
STRATEGY 2: cont'd

Say, "Look at the scale. What is the weight of this dog?" Repeat this procedure using other animal pictures and other numbers.

2.01.03.02 **write numbers 50 through 100 by tens**

STRATEGY 1: Prepare a clothesline and numbered "shirts". Say, "The team just won a game. Each player's shirt is washed after each game and then hung out to dry. Which player forgot to give us his/her shirt?" (70)

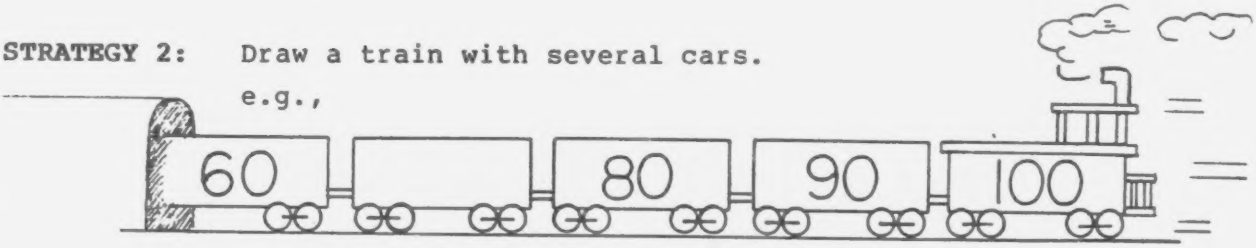
e.g.,



Ask a student to write the number on the chalkboard as the others record it in their notebooks. Repeat this procedure replacing 70 and omitting other players' shirts.

STRATEGY 2: Draw a train with several cars.

e.g.,



Say, "Look for the car without a number. Which number should have been painted on the car?" Ask a student to write the number on the car as the other students write it in their notebooks.

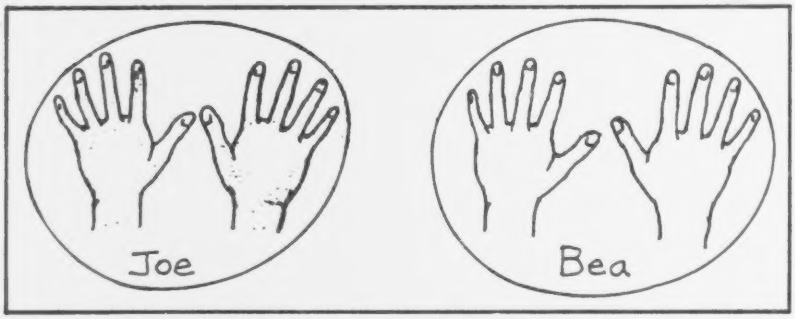
Repeat this procedure for other missing numerals, giving students time to write the numerals in their notebooks.

2.01.03

2.01.03.03 **count and order numbers 100 through 1000 by tens**

STRATEGY 1: Prepare and distribute paper, crayons and scissors. Ask the students to trace, color and cut out the outline of their hands and sign them. Prepare and display a large blank poster for the students to paste the cutouts.

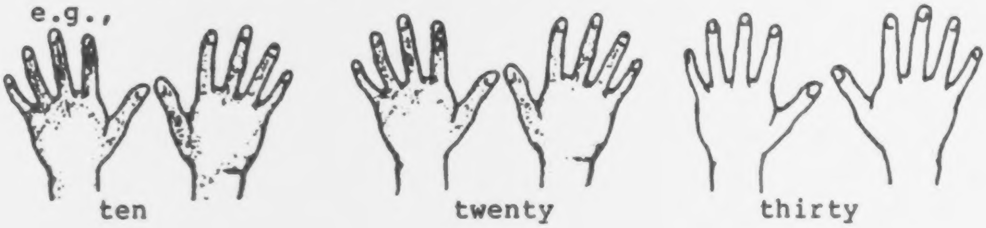
e.g.,



Circle each student's hands. Say, "How many fingers are in each circle on the poster? Count by tens."

Repeat this procedure as you add the cutout hands of other students. Say, "How can we check to be sure we are correct? If everyone whose cutouts appear raise their hands, we can check the number by counting the raised hands."

e.g.,

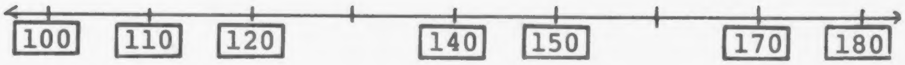


Extend to several classes on the grade so that the number of hands may reach 1000.

2.01.03

STRATEGY 2: Prepare numeral cards which are to be placed along a number line.

e.g.,



Say, "What happens to the numbers as you move to the right on the number line?...to the left? This number line shows the numbers on a racetrack from which some numbers blew away, have been found and must be replaced. Which number card belongs between 120 and 140?" Ask a student to place that card on the number line. Repeat this procedure, extending the number line and using other missing numbers.

2.01.03.04 **write numbers 100 through 1000 by tens**

STRATEGY 1: Prepare and distribute sequential numeral cards showing multiples of ten with one number per card,

e.g.,

100 110 120

Say, The students holding cards 100, 110 and 120 will come to the front of the room and tape the cards to the chalkboard in correct order." Ask a student to write the next number on the chalkboard as the other students write it in their notebooks. Continue with other numbers moving closer to 1000.

Repeat this procedure using other sequential multiples of ten through 1000.

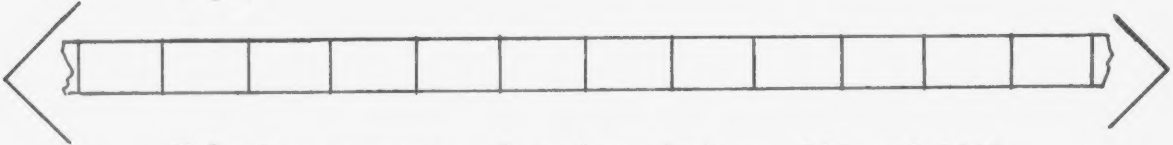
e.g.,

540, 550, 560, ____

2.01.03

STRATEGY 2: Prepare a number line using adding machine tape. Fold the tape evenly many times so that it provides "points" for multiples of ten on the number line. Use a crayon to mark the folds.

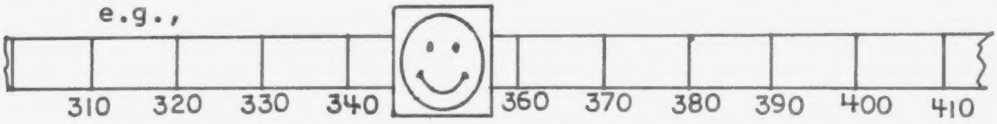
e.g.,



Select a sequence of numbers between 100 and 1000, showing multiples of ten. Ask a student to indicate in which direction you go when counting forward (or backward) on the number line.

Say, "Close your eyes while I cover a number with a card. Open your eyes and write the covered number in your notebook." Ask a student to write the number on the chalkboard.

e.g.,

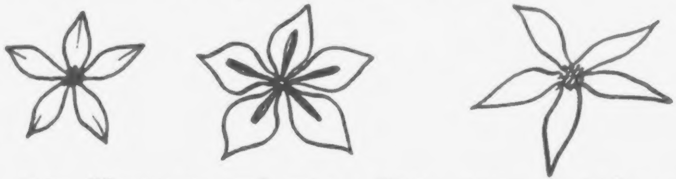


Repeat this procedure covering first one and then several numbers at a time.

2.01.03.05 **count and order numbers 0 through 1000 by fives**

STRATEGY 1: Prepare several five pointed flowers.

e.g.,

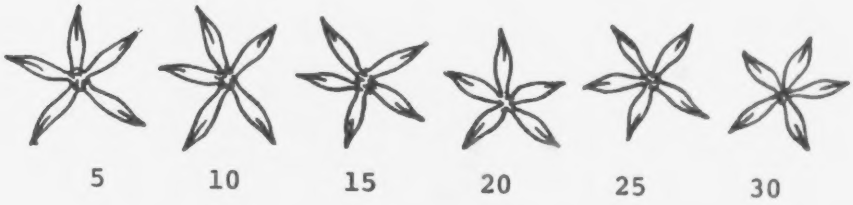


Display two flowers and say, "How many petals are

STRATEGY 1: cont'd

on two flowers?" Ask a student to count them. Repeat this procedure showing 3, 4, 5,... flowers. Say, "What is a faster way to count these petals?" (counting by fives)

e.g.,



Repeat this procedure using more flowers or stars.

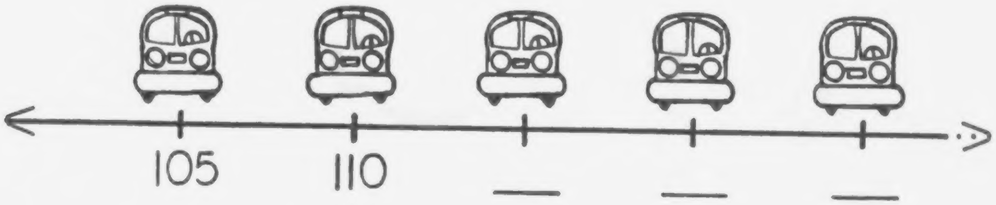
STRATEGY 2: Prepare sequential numeral cards showing multiples of five with one number per card.

e.g.,

105 110 115 120

Give each student a card. Say, "These are the numbers of the streets on which buses drive each day. At the end of the day each bus is parked in a parking space which matches the number of the street on which it travels." Draw a number line with several buses.

e.g.,



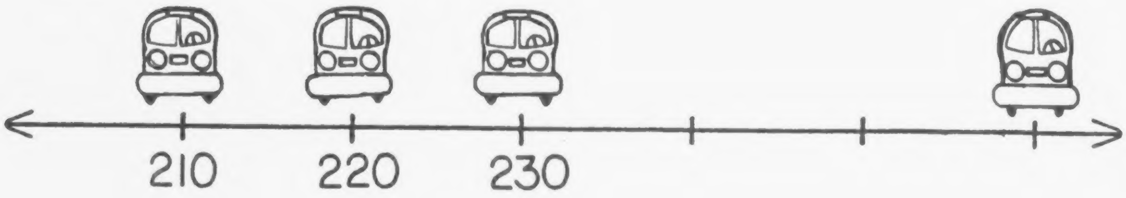
Say, "Who has the number for the next parking space? Place it in the correct place on the number line."

2.01.03

STRATEGY 2: cont'd

Repeat this procedure by varying the "street" numbers and by omitting some of the numbers on the line. Say, "Which buses did not yet arrive?"

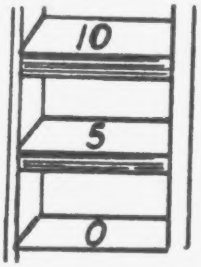
e.g.,

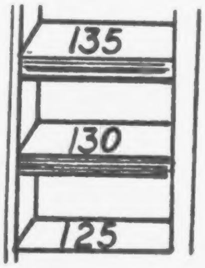


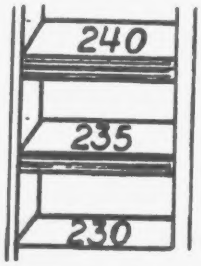
2.01.03.06 **write numbers 0 through 1000 by fives**

STRATEGY 1: Prepare several packs of cards having different sequences showing multiples of five to be used as rungs on ladders. Say, "This is a story about the world's tallest ladders. They can reach the top of the world's tallest buildings. They are called the FIVE STEP LADDERS because the steps are numbered by counting by fives.

e.g.,







Say, "Look at the ladders. When I say 'Cover your eyes', I will remove one of the numbers from the steps (rungs) of a ladder. Then you will uncover your eyes and look at the ladders." Ask a student to come to the chalkboard and write the missing number as the other students write the missing number at their desks.

Repeat this procedure for several series of number "ladders".

STRATEGY 2: Draw a picture of a number chart from 1 through 50. e.g.,

1	2	3	4		6	7	8	9	
11	12	13	14		16	17	18	19	
21	22	23	24		26	27	28	29	
31	32	33	34		36	37	38	39	
41	42	43	44		46	47	48	49	

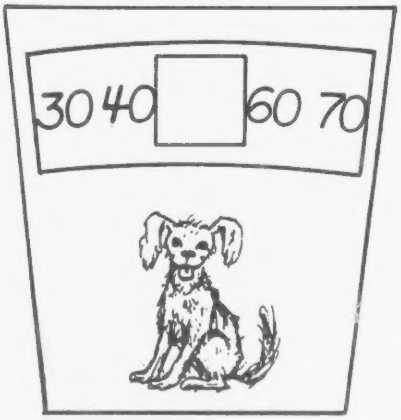
Distribute a numbered "ticket", which includes the ten multiples of 5, to each student. Say, "This is a diagram or a make-believe picture of an auditorium. Which numbers are not shown in the diagram?" Point to the first blank space and say, "What number is missing?" (5) Ask that ticket holder to write the missing number in that space. Continue this procedure for ticket number 10 and for the other multiples of 5 until all the empty spaces have numbers.

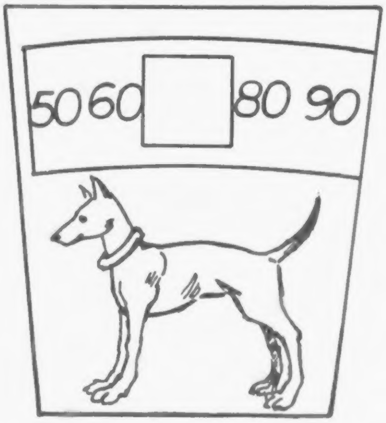
Repeat this procedure for other multiples of five through 1000.

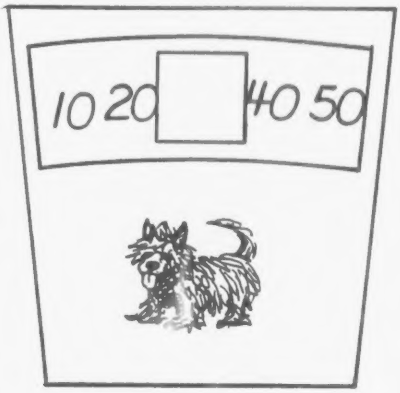
P.O. 2.01.03.01

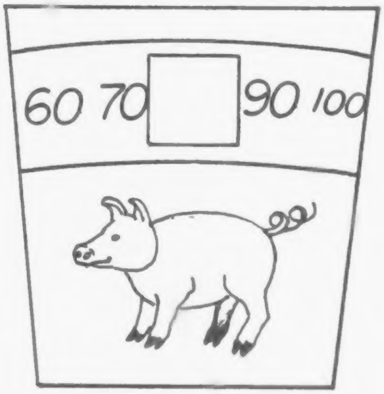
NAME: ______________________ **CLASS:** __________ **DATE:** ________

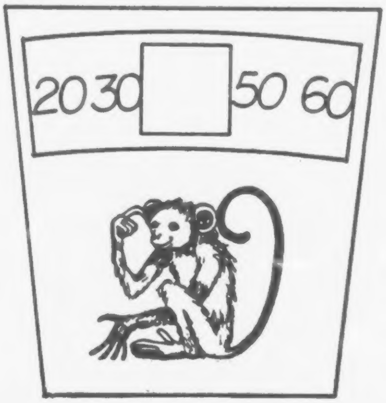
How much does each animal weigh? Count by tens.
Write the missing numeral.

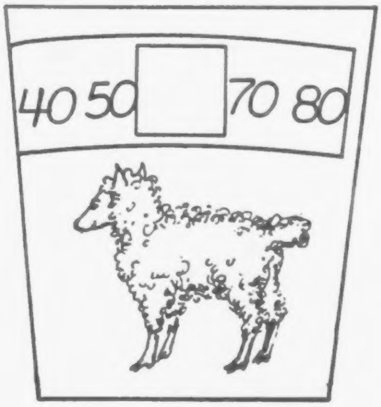








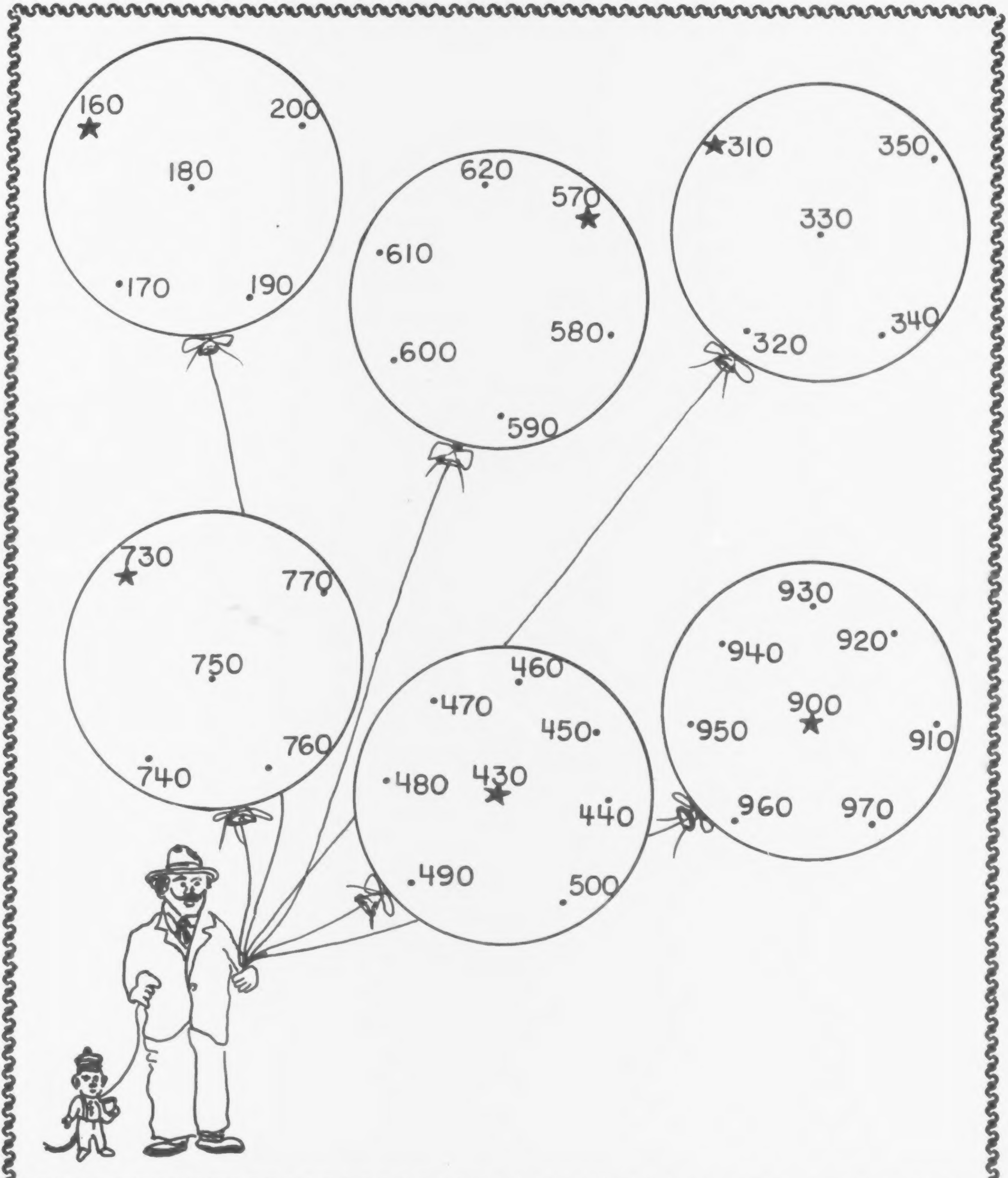




P.O. 2.01.03.02

NAME: ______________________________ CLASS: __________ DATE: ________

Start at each star. Draw a line that connects the numbers in each balloon in the correct order.



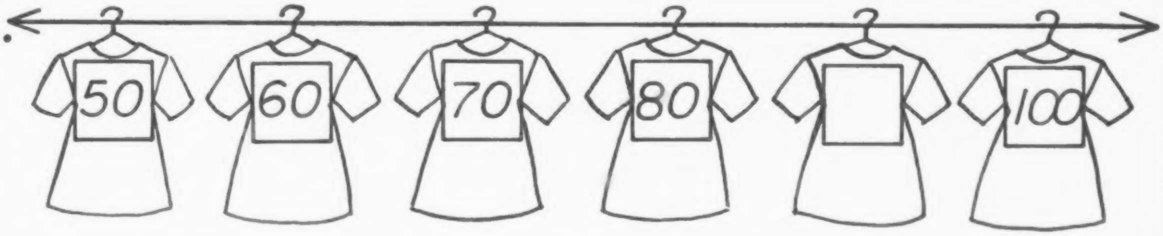
160
200
180
170
190
620
570
610
580
600
590
310
350
330
320
340
730
770
750
760
740
460
470
450
430
480
440
490
500
930
940
920
900
950
910
960
970

P.O. 2.01.03.03

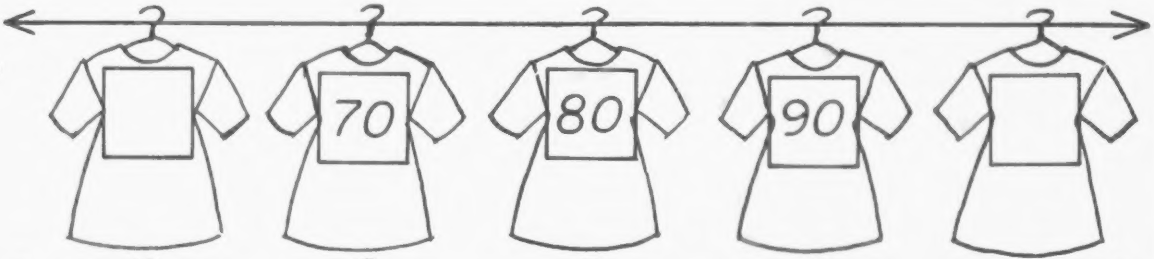
NAME:____**CLASS:**__________**DATE:**________

Write the missing numbers.

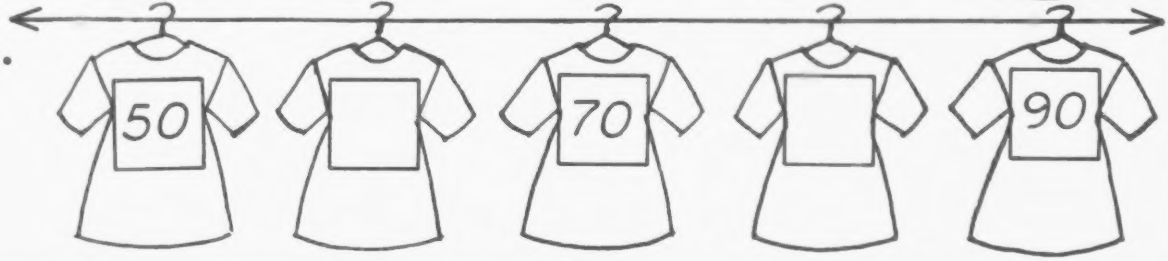
A.


50
60
70
80
100

B.



C.



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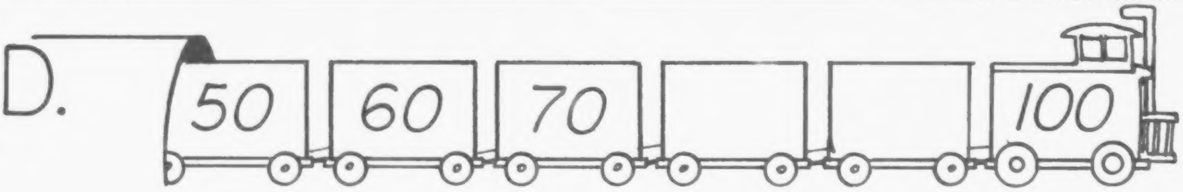
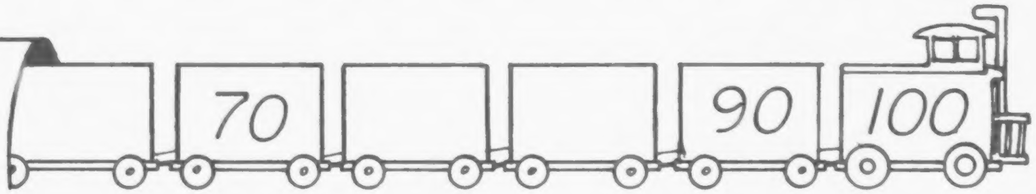


E.



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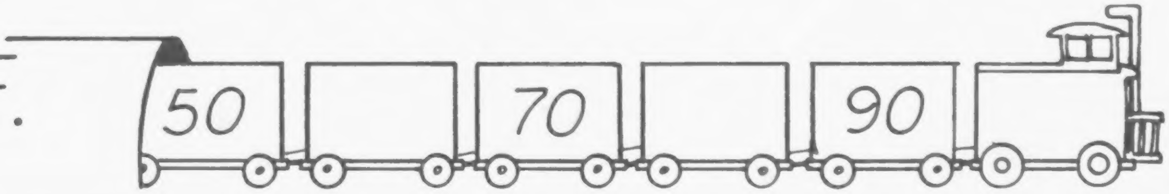
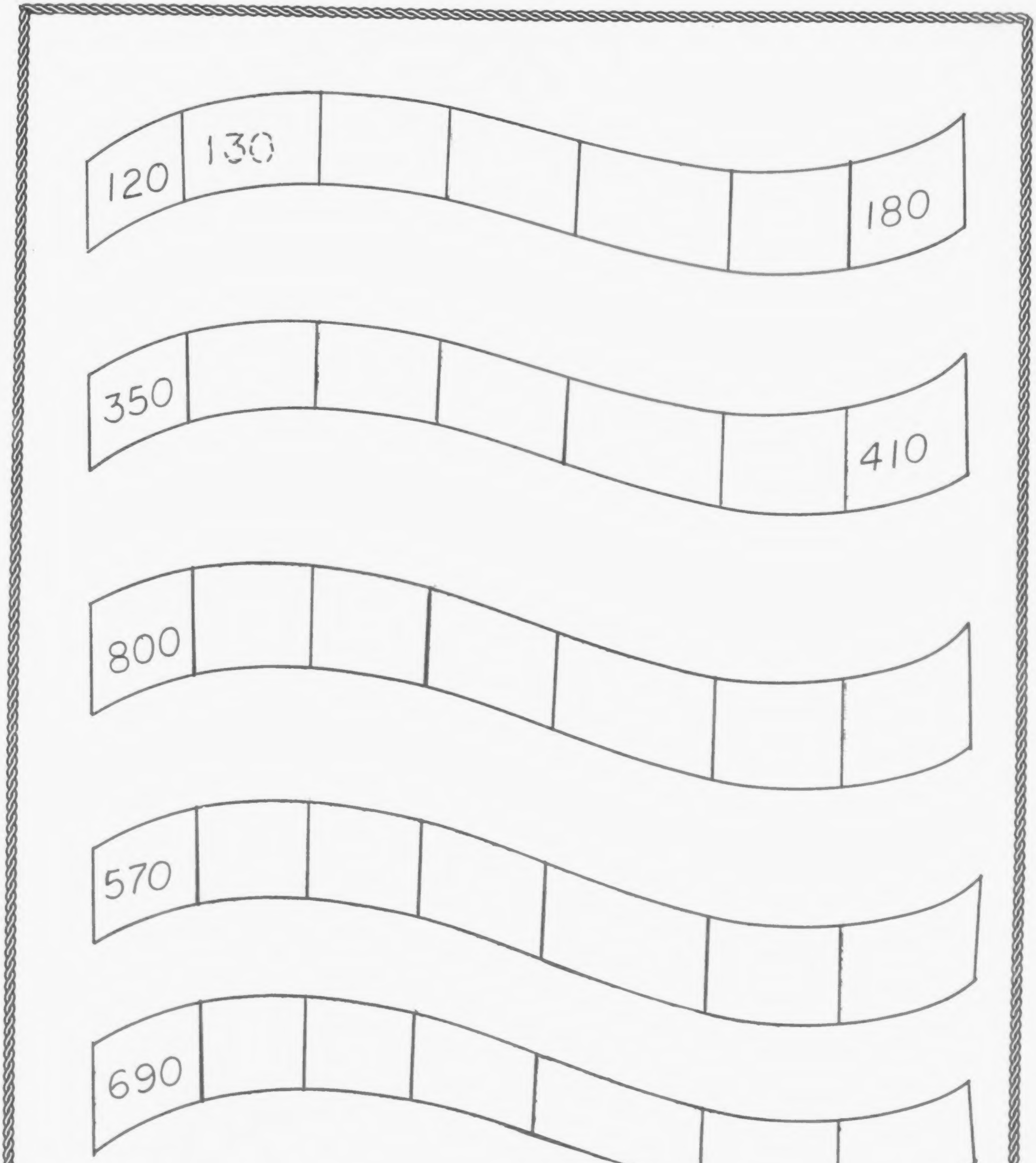


P.O. 2.01.03.04

NAME: ______________________ CLASS: ________ DATE: ________

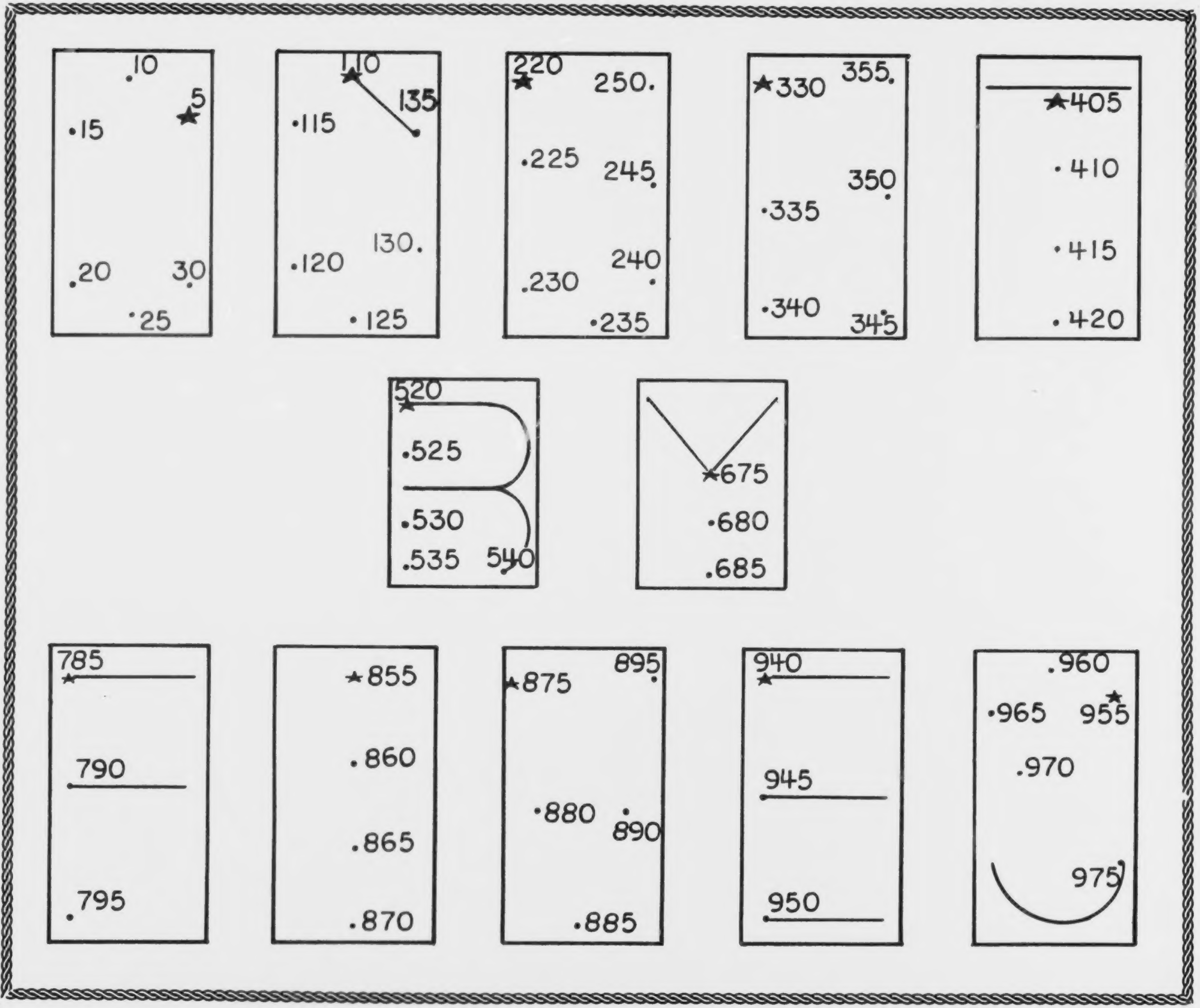
Count by tens and write the missing numbers in the empty boxes.


120
130
180
350
410
800
570
690

P.O. 2.01.03.05

NAME: ____________________ CLASS: __________ DATE: __________

Connect the numbers in each box, counting by fives. Begin at the star (★)
Can you read the message?

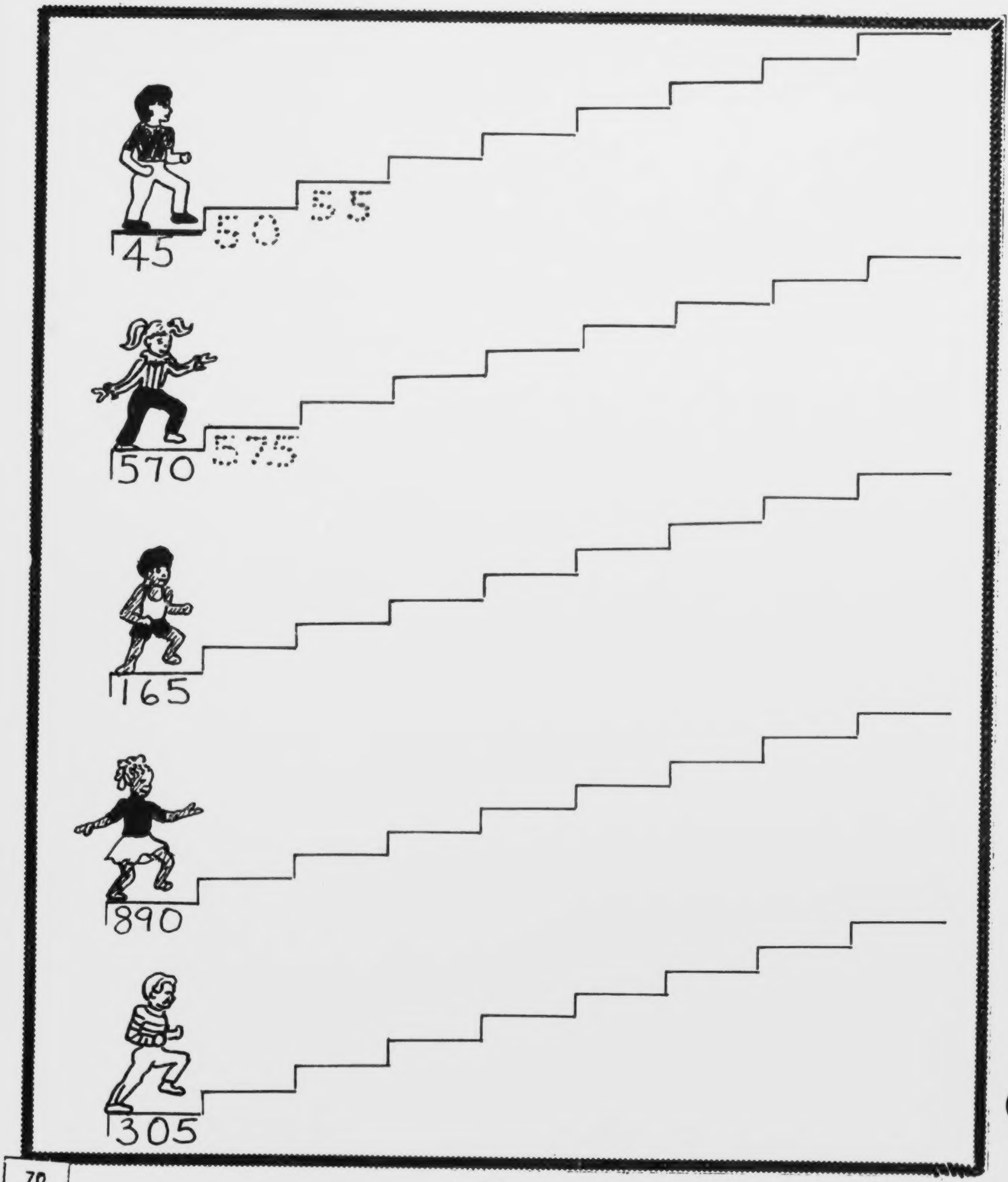


10
5
15
20
30
25
110
135
115
130.
120
125
220
250.
225
245
230
240
235
330
355.
350
335
340
345
405
410
415
420
520
525
530
535
540
675
680
685
785
790
795
855
860
865
870
875
895
880
890
885
940
945
950
960
965
955
970
975

P.O. 2.01.03.06

NAME:______________________________CLASS:__________DATE:________

Can you climb to the top of each staircase? Write the numbers as you count by fives.


45
50
55
570
575
165
890
305

2.01.04 RELATION SYMBOLS =, <, >

(2 lessons)

PERFORMANCE OBJECTIVES

The student will be able to...

2.01.04.01A compare the numbers 0 through 1000 using the relation symbol = (equal);
e.g.,

4 = 4
136 ◯ 136

2.01.04.02A compare the numbers 0 through 1000 using the relation symbol > (greater than);
e.g.,

2 > 1
16 ◯ 8
341 ◯ 246

2.01.04.03A compare the numbers 0 through 1000 using the relation symbol < (less than);
e.g.,

2 < 3
15 ◯ 18
534 ◯ 782

2.01.04.04A compare numbers 0 through 1000 using the relation symbols =, <, >.
e.g.,

12 = 12
12 > 11
611 < 612

2.01.04

VOCABULARY

TERMS	SYMBOLS
is equal to	=
is greater than	>
is less than	<

GETTING STARTED

Prepare a red and a green crayon for each student. Display two unequal groups using the same objects for both groups, e.g., seven beans and nine beans or four pencils and ten pencils. Ask students to count the number of objects in each group. Say, "Write the number for each group in your notebook. Are the groups the same? Which is larger? . . . smaller? Draw a red circle around the larger number and a green circle around the smaller number." Repeat this procedure using other unequal groups.

Prepare a set of twenty cards, randomly numbered from 0 through 1000.

e.g.,

$\boxed{23}$ $\boxed{45}$ $\boxed{18}$ $\boxed{26}$ $\boxed{51}$

Display one card at a time. Ask the students to name the numeral on each card. Show any two cards to the class. Say, "Are the numerals on these two cards the same or different?" If they are different, ask which numeral card is greater or lesser than the other. Repeat this procedure using other pairs of numeral cards.

2.01.04

2.01.04.01 **compare the numbers 0 through 1000 using the relation symbol = (equal)**

STRATEGY 1: Prepare two sets of 20 cards each randomly numbered from 0 through 1000, e.g., $\boxed{200}$ $\boxed{200}$ $\boxed{7}$ $\boxed{7}$ Ask one student to choose a card from one set. Ask another student to go to the other set of cards and find the same number, e.g., $\boxed{212}$ $\boxed{212}$. Say, "The numbers are exactly alike; therefore, they are equal." Ask the other students in the class if they agree that they are equal.

Write on the chalkboard, 212 = 212. Repeat this procedure until all students have participated.

STRATEGY 2: Say, "Mr. Jones has a kennel with 57 dogs. He wants to give each dog a bone. How many bones does Mr. Jones need? (57) We will write the number 57 to show the number of dogs and another 57 to show the number of bones." Write only the numbers on the chalkboard, e.g., 57 57. Elicit from the students that when two numbers are written the same way, they are equal. Ask a student to place an equal symbol between the numbers written on the chalkboard and to read the number sentence aloud.

Repeat this procedure telling other stories using equal groups of objects. Ask the students to come to the chalkboard and write number sentences for these stories. Ask students to create similar stories and to write appropriate number sentences.

2.01.04

2.01.04.02 **compare the numbers 0 through 1000 using the relation symbol > (greater than)**

STRATEGY 1: Prepare a number line numbered from 0 through 50. Say, "Let's take an airplane trip. When we get on the airplane, the pilot announces that there are 50 seats on the airplane and 27 passengers. Which is greater, the number of seats or the number of passengers?" Point to 27 on the number line. Ask the students to count to 50. Elicit from the students that the number of seats (50) is greater than the number of passengers (27). Write 50 and 27 on the chalkboard. Write the symbol > between the two numbers. Say, "50 is greater than 27." Repeat this procedure using other numbers from 0 through 1000 that are not equal, and remembering to say and write the larger number first.

STRATEGY 2: Prepare five sets of 6 cards with 3-digit numbers on each. Prepare five cards with the greater than symbol, (>). Each pair of the six cards should be the same except for one digit.

e.g.,

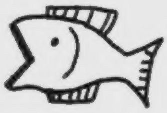
164 169 342 382 950 750

Write on the chalkboard.

820 827 >

Point to the greater than symbol >. Say, "This symbol means greater than. It is made like the open mouth of a hungry fish. His mouth will always be open towards the larger number because he is so hungry. Whatever number is next to the open side of mouth is the greater numeral."

e.g.,

827  820

STRATEGY 2: cont'd

Say, "This means that 827 is greater than 820." Separate the class into five groups and distribute a set of six cards with a greater than symbol card to each group. Ask each student to use the numeral cards and the greater than symbol card to make two math sentences. Repeat this procedure until all the students have practiced creating greater than number sentences.

2.01.04.03 **compare numbers from 0 through 1000 using the relation symbol < (less than)**

STRATEGY 1:

Say, "Let's pretend we are going to the park. There will be 29 students at the park and I have only 14 kites. Will every one of us get a kite? (No) How would we compare the number of kites with the number of students?" Elicit from the students that the number of kites is less than the number of students. Introduce the symbol < by writing it on the chalkboard with the number sentence 14 < 29. Say, "14 is less than 29."

Repeat this procedure using numbers from 0 through 1,000. Remember to say and write the smaller number on the left when using the less than symbol.

STRATEGY 2:

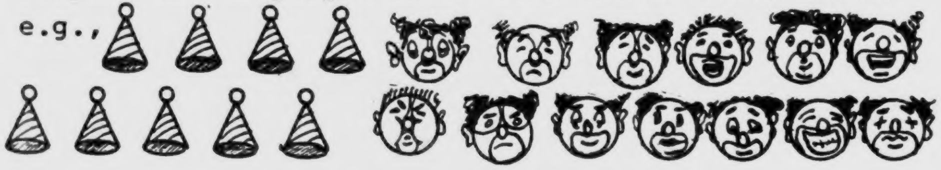
Prepare several index cards each with a number from 0 to 1000.

e.g.,

8   352   625

Prepare and display 9 clown hats and 13 clown heads.

e.g.,



2.01.04

STRATEGY 2: cont'd

Say, "Ms. West owns a doll factory. She is making clown dolls. How many clown hats do you see? (9) How many clown heads do you see? (13) Will every head get a hat? (No) Why not? (There are fewer hats than heads.) Write 9 is less than 13 on the chalkboard. Say, "In mathematics we may replace words with symbols." Write 9 < 13 on the chalkboard. Say, "Ms. West has less hats than heads." Display two number cards. Say, "Who can write a number sentence using these numbers which compare hats and heads?" Write the headings "Hats" and "Heads" on the chalkboard and ask a student to write the numbers under the appropriate column and to place the less than (<) between the two numbers.

e.g.,

Hats		Heads
27	<	38

Repeat this procedure using the remaining index cards.

2.01.04.04 **compare numbers 0 through 1000 using relation symbols =, >, <**

STRATEGY 1: Prepare flannel number cutouts, flannel <, > and = symbols and a flannelboard. Place the numbers and symbols on the flannelboard. Elicit that the apex or point of the < and > symbols always point to the smaller number and the wide side is open to the larger number. Write several pairs of numbers on the chalkboard. Ask the students to place the appropriate symbol between the numbers and read the number sentence.

e.g.,

632 < 854   795 > 263   251 = 251

2.01.04

STRATEGY 2: Prepare two matching sets of ten, 3-digit numeral cards. Prepare symbol cards for greater than (>), less than (<), or equal to (=). Ask one student to select a card from one pile. Ask another student to select a card from the second pile. Ask a third student to select a symbol card.

Ask another student to arrange the three students holding the cards so they create as many correct number sentences as possible.

e.g.,

$\boxed{625} < \boxed{840}$

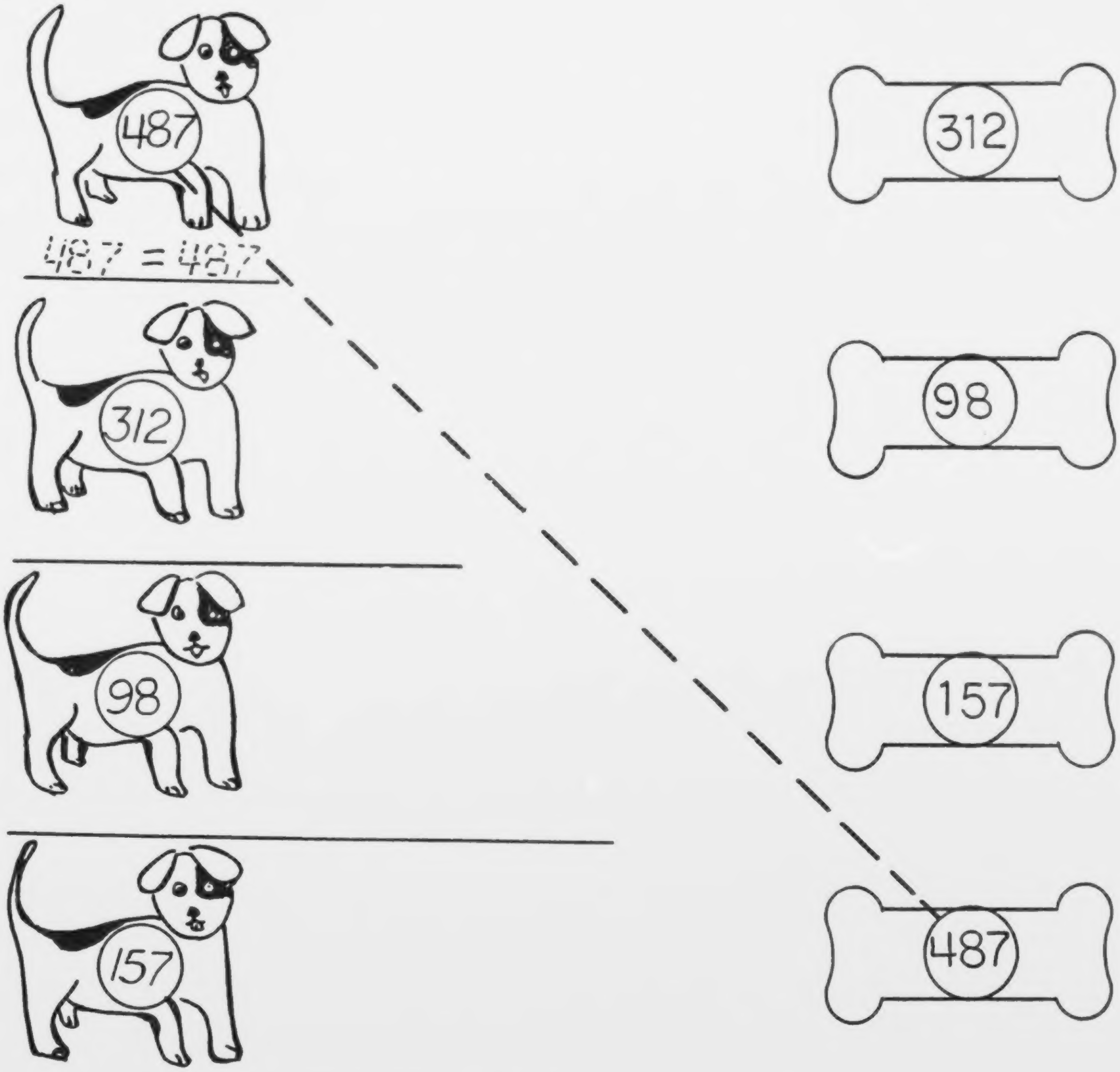
$\boxed{840} > \boxed{625}$

$\boxed{250} = \boxed{250}$

P.O. 2.01.04.01

NAME: ______________________ CLASS: __________ DATE: ________

Draw a line from each number on the dogs to the matching number on the bones. Write the matching numbers using an equal symbol.


487
312
98
157
312
98
157
487

487 = 487

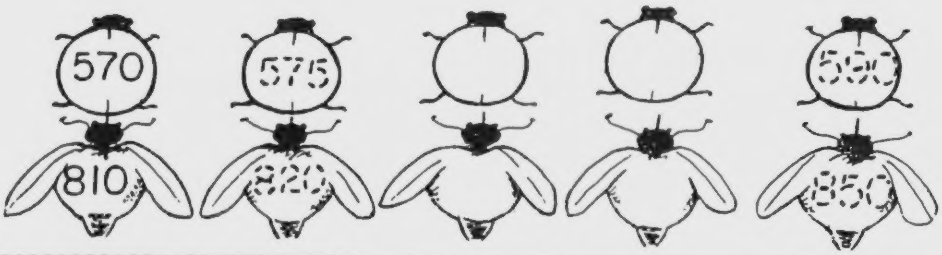
____

____

DO YOU REMEMBER?

Count by fives.

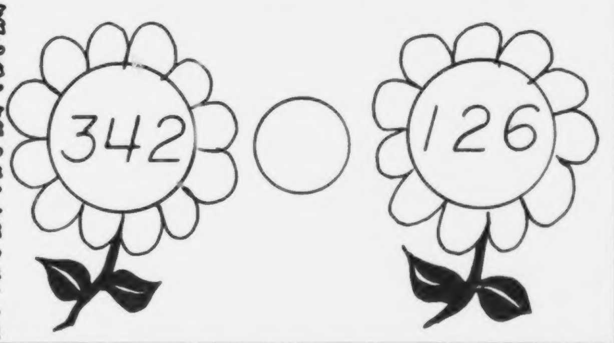
Count by tens.

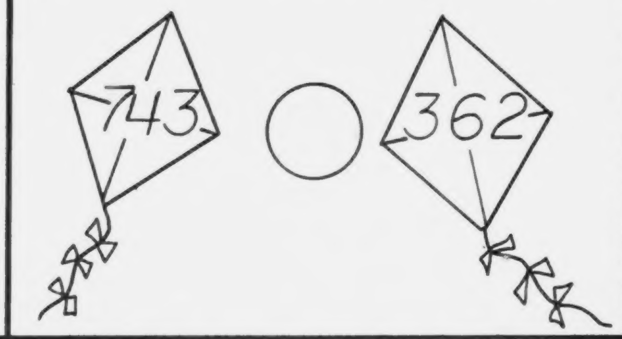

570
575
590
810
820
850

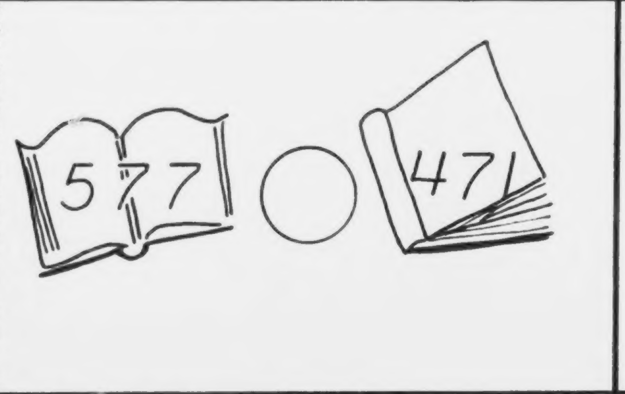
P.O. 2.01.04.02

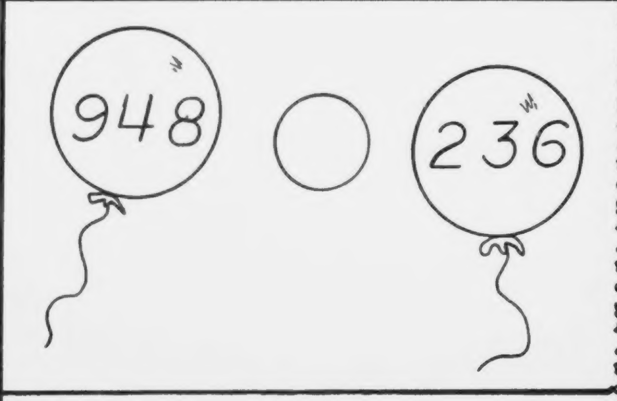
NAME: ______________________________ CLASS: __________ DATE: ________

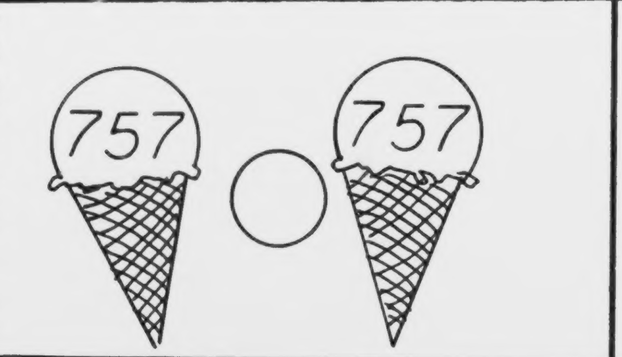
Write the symbol >, or = in each circle.

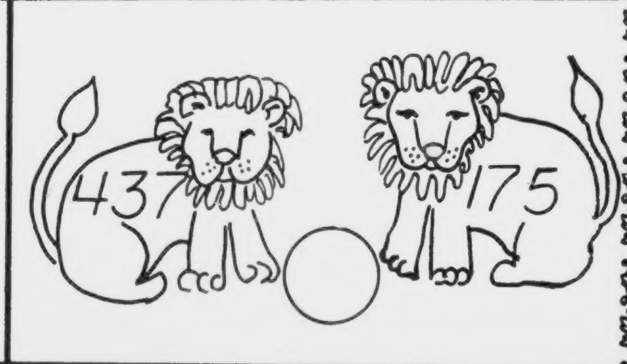


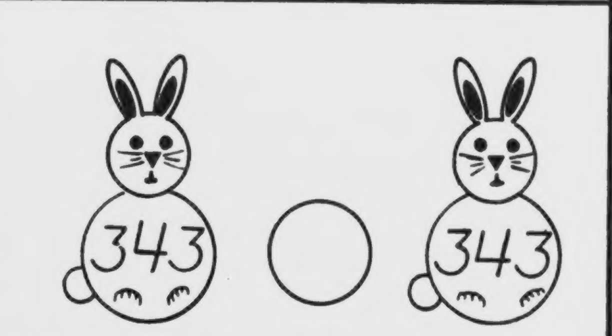


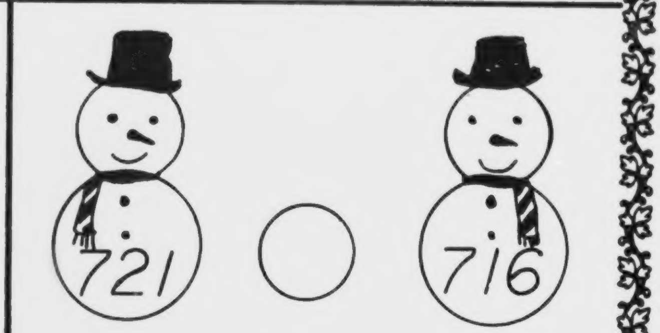








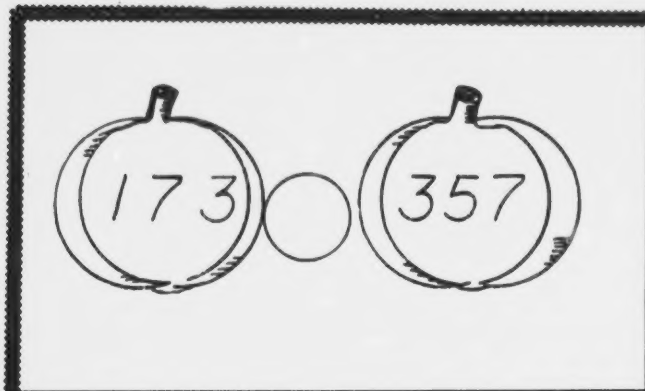


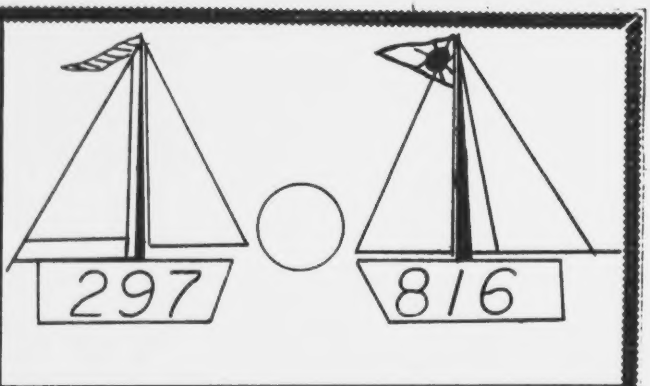


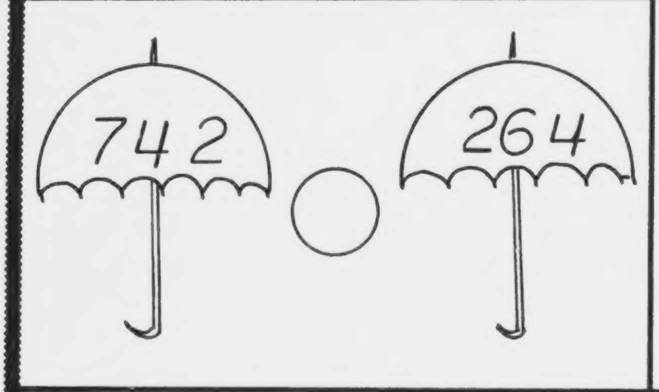
P.O. 2.01.04.03

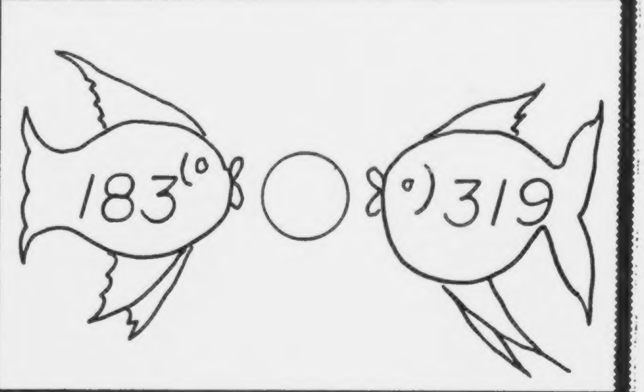
NAME: ________________________ CLASS: ________ DATE: ________

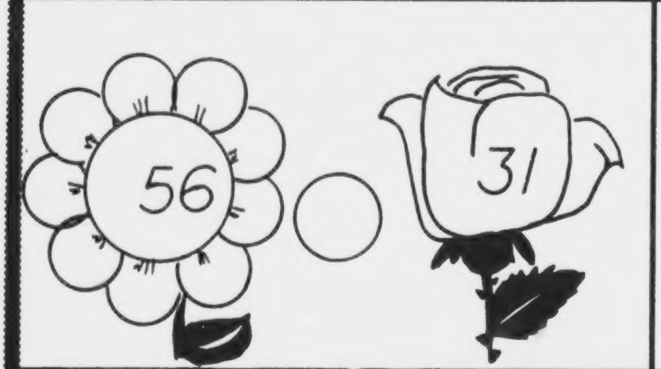
Write the symbol > (greater than) or < (less than) in each circle.

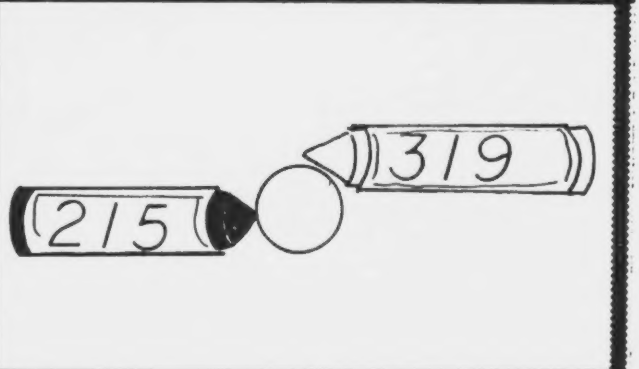


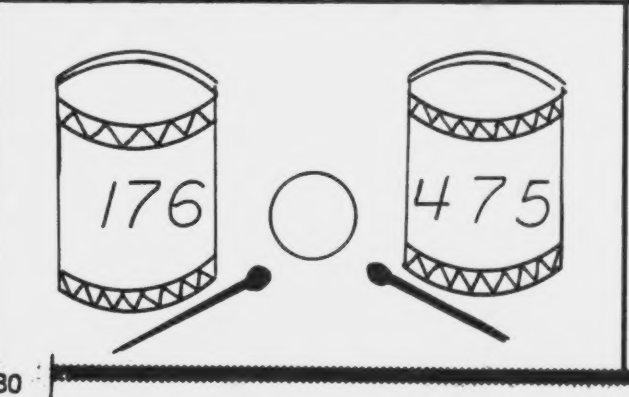


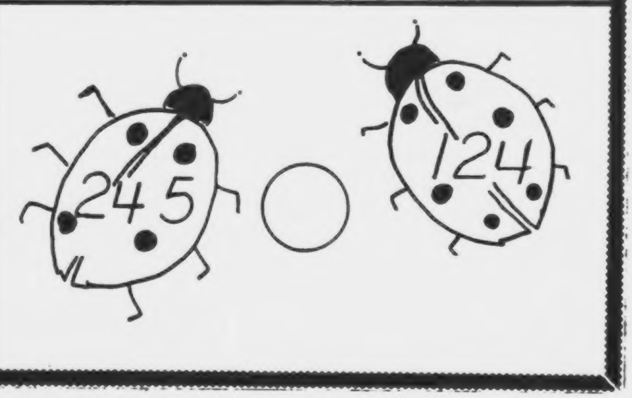








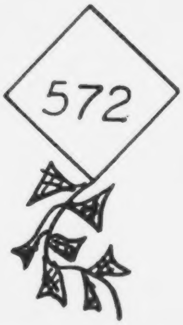




P.O. 2.01.04.04

NAME: ______________________ CLASS: ________ DATE: ________

Write the symbol > (greater than), < (less than), or = (equal to) in each circle.



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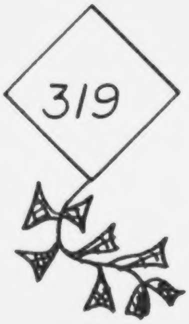

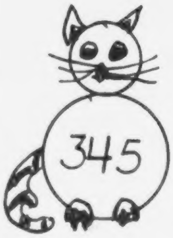

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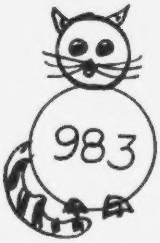

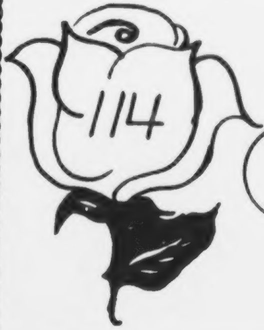

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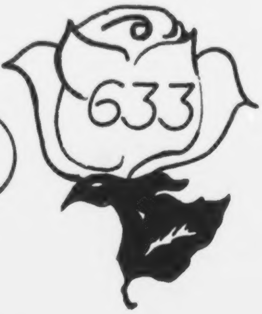

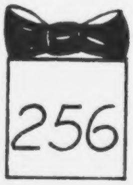

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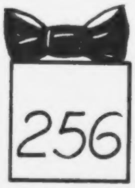

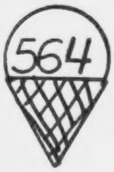

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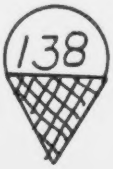

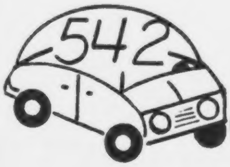

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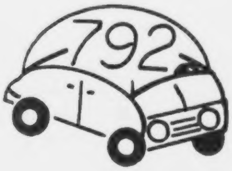

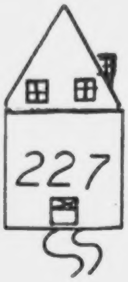

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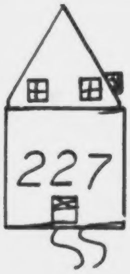

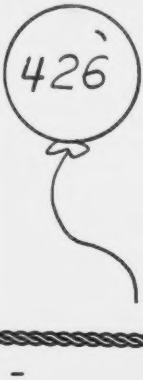

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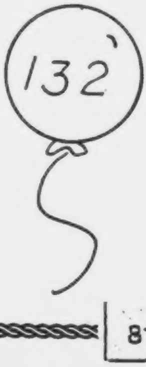


2.13.01 LOCATE INFORMATION

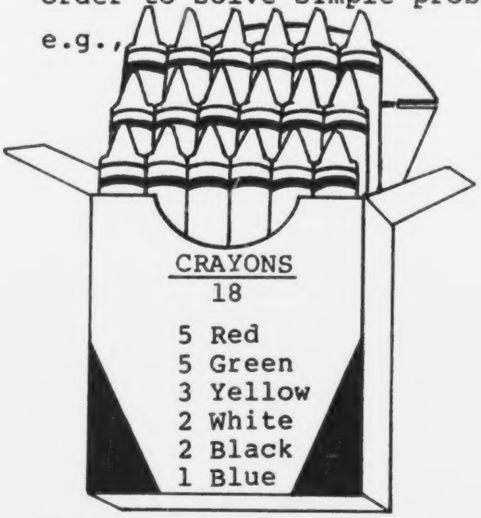
(2 lessons)

PERFORMANCE OBJECTIVES

The student will be able to...

2.13.01.01A locate information in the environment in order to solve simple problems;

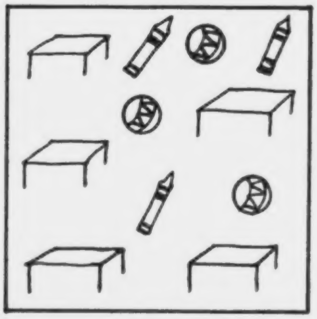
e.g.,


CRAYONS
18
5 Red
5 Green
3 Yellow
2 White
2 Black
1 Blue

Which colors have the same numbers of crayons?

2.13.01.02A locate information in a picture in order to solve simple problems;

e.g.,



How many desks are there?

2.13.01.03A locate information on a table or chart in order to solve simple problems.

e.g.,

potato chips	25¢
pretzels	20¢
ice cream	30¢

How much does a pretzel cost?

VOCABULARY

TERMS

table
chart

GETTING STARTED

Prepare a table for the months of the year.

e.g.,

Months	Number of Birthdays
January	///
February	//
March	////
April	
May	
June	
July	
August	
September	
October	
November	
December	

As you recite the months of the year, ask the students to raise their hands when they hear their birthday month. Place tally marks beside the months. Elicit answers to the following questions.

- Which month has the most birthdays?
- Which month has the fewest birthdays?
- How many more birthdays are there in ______ than ______?
- How many birthdays are there in January and February?
- Which months have the same number of birthdays?

On the chalkboard write the names of the days of the week and the number of students present each day. Ask the students what kind of information can be found on this chart.

e.g.,

Day of the Week	Number of Students Present
Monday	18
Tuesday	16
Wednesday	22
Thursday	20
Friday	20

GETTING STARTED cont'd

There are several appropriate responses.

e.g.,

- The days I attend school are listed in order.
- Wednesday is between Tuesday and Thursday.
- The greatest number of students attended school on Wednesday.
- An equal number of students attended school on Thursday and Friday.

2.13.01

2.13.01.01 **locate information in the environment in order to solve simple problems**

STRATEGY 1: Divide the class into five groups and ask each group to select a team name. Write the names of the teams on the chalkboard.
e.g.,

Class Teams	Brothers and Sisters in Your Family		
	Brothers	Sisters	Team Totals
Mets	3	2	5
Cubs			
Blue Jays			
Yankees			
Panthers			

Say, "Stand when I call the name of your team. When I say, 'brothers' hold up the same number of fingers as there are brothers in your family." Make a tally mark for each brother named. Repeat this procedure for sisters. Write the team totals. Use the resulting chart to elicit answers to the following questions: Which team has the most sisters?...brothers? Which team has the fewest sisters?...brothers? Which team has the greatest number of sisters and brothers...fewest? How many brothers do the Blue Jays and the Cubs have in all? How many more sisters do the Yankees have than the Panthers?...How many less...?

STRATEGY 2: Prepare several boxes containing five red, five green, three yellow, two white, one black and two blue crayons. Divide the class into several groups. Say, "Take the crayons out of the boxes and separate them by color. Count how many there are of each color. Which colors have the same number of crayons? Which color has the fewest crayons? How many more red crayons are there than black? ...blue?"

2.13.01

2.13.01.02 **locate information in a picture in order to solve simple problems**

STRATEGY 1: Prepare a chart with magazine pictures of different environments, e.g., outdoor scene, classroom, kitchen, office. Elicit from the students the location of objects and people in each picture by asking several questions.

e.g.,

Who is closest to the door?
How many boats are there?
Which person is tallest?
What do you see below the table?
How many more books are there than students?
Why is the boy wearing mittens?

STRATEGY 2: Prepare and display five red, three yellow, four green, six blue, and two orange circles. Say, "How many more red circles are there than yellow circles? How many red and yellow circles are there in all? How many more blue circles than orange circles? How many circles in all? Which color has the most circles?...fewest circles? If two reds were taken away, how many would be left? If you add two more yellow circles, how many would you have?" Ask the students to create their own charts and to write several questions about the circles on the chart.

e.g.,

orange	yellow	blue
○ ○ ○	○ ○ ○ ○ ○ ○ ○ ○ ○	○ ○ ○ ○

How many more blue circles were used than orange?

2.13.01

2.13.01.03 **locate information on a table or chart in order to solve simple problems**

STRATEGY 1: Prepare a price list.
e.g.,

School Store

apple - 20¢
granola bar - 35¢
notebooks - 50¢
pencils - 10¢
erasers - 5¢
paste - 40¢

Say, "This is a chart which shows the prices of several items in the school store. How much does an apple cost? How much will two pencils cost? How many erasers can John buy with a dime? John bought a pencil and an eraser. How much did he spend? How much change will May get from a quarter if she buys two pencils?" Ask the students to make up questions using the items on the chart.

STRATEGY 2: Create a chart by eliciting the students' birthdays.
e.g.,

CLASS BIRTHDAYS

January	February	March...	December
John Sally	Dorothy		

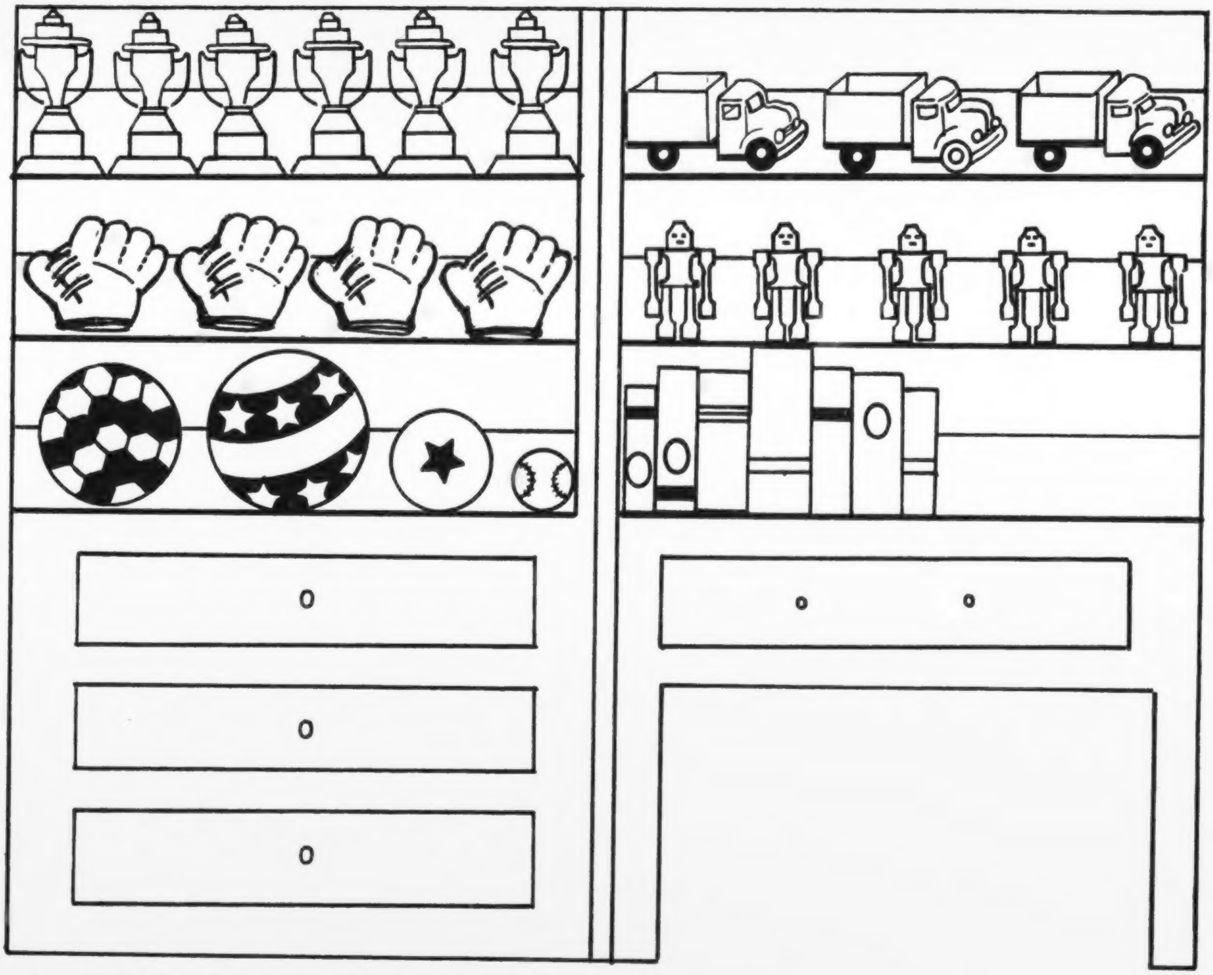
Ask the students the following questions.

How many students are listed?
Which months are not listed?
Whose birthday is in May?
When is Connie's birthday?
How many students have a birthday in August?
Which month has the most students' birthdays?

P.O. 2.13.01.01

NAME: ______________________ CLASS: __________ DATE: ________

Use the pictures to answer the questions below.



1. Which item on the shelves has the fewest in number? ____________

2. Which item has the greatest in number? ____________

3. Which items are equal in number?
____________ ____________

4. How many items are on the shelves altogether? ____________

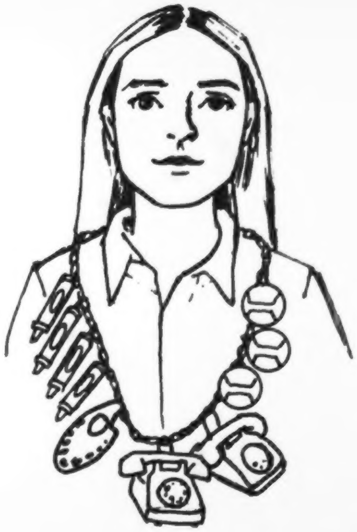
5. How many more books are there than trucks? ____________

P.O. 2.13.01.02

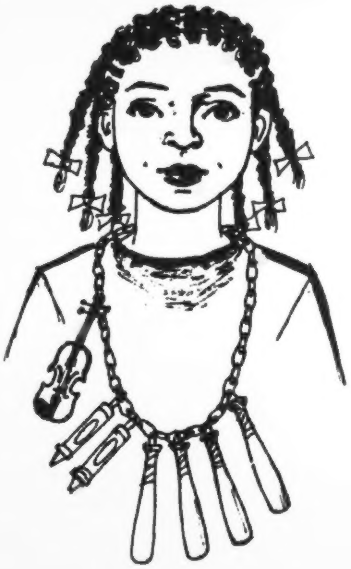
NAME: ______________________ CLASS: __________ DATE: ________

Use the pictures to answer the questions below.

SUSAN



LISA



1. How many charms are on Susan's necklace? ____________
2. How many charms are on Lisa's necklace? ____________
3. How many charms are there altogether? ____________
4. How many more charms is Susan wearing than Lisa? ____________
5. How many crayons are on Susan's necklace? ____________
6. How many more bats than crayons are on Lisa's necklace?

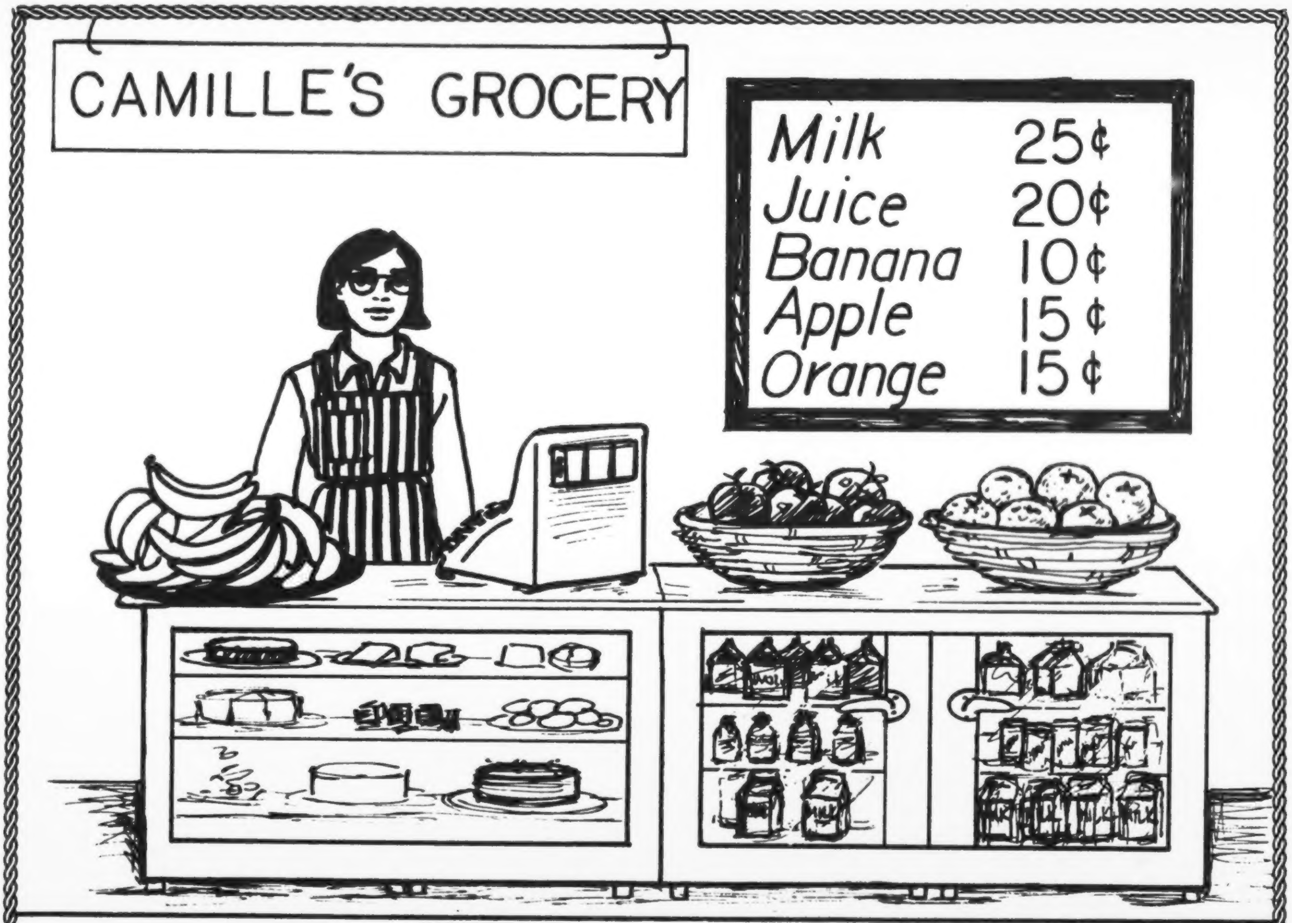
   ____

7. How many more crayons does Lisa need to have the same amount of crayons as Susan? ____________

P.O. 2.13.01.03

NAME:____ CLASS:__________ DATE:________

Use the price list to answer the questions below.


CAMILLE'S GROCERY
Milk 25¢
Juice 20¢
Banana 10¢
Apple 15¢
Orange 15¢

1. How much does an apple cost? ______________

2. Which two items together cost a quarter?
   ____________ and ____________

3. Which item costs the most? ______________

4. Which item costs the least? ______________

5. How much more does juice cost than a banana? ______________

6. How many items are shown on the price list? ______________

2.12.01 DATA - COLLECT, TABULATE, ARRANGE AND COMPARE IN TABLES

(1-2 lessons)

PERFORMANCE OBJECTIVES

The student will be able to...

*2.12.01.01A collect, tabulate and arrange data in a table; e.g.,

	Red	Blue
Cars	𝍸 𝍸 ||	𝍸 𝍸

*2.12.01.02A compare data in a table.
e.g.,

	Red	Blue	Green
Cars	5	4	3

How many cars are red?

The number of red cars is greater than the number of blue cars.

The number of green cars is less than the number of red cars.

2.12.01

VOCABULARY

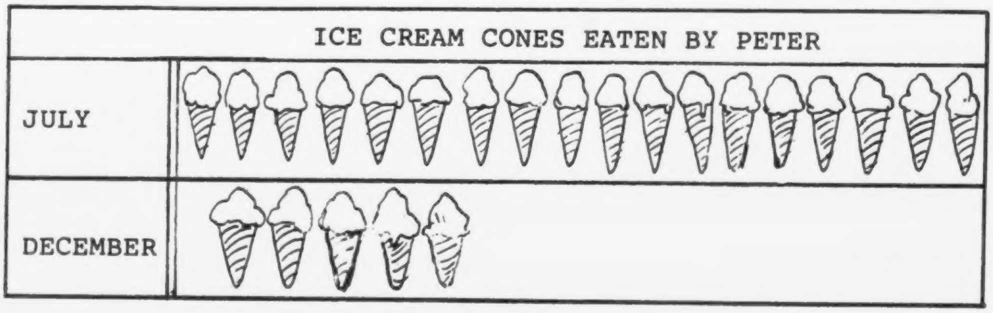
TERMS

data	table
collect	graph
arrange	pictograph

GETTING STARTED

Say, "Think about the colors you are wearing and follow my directions. If you are wearing a red shirt or blouse, stand up. If you are wearing a blue shirt or blouse, place your hands on your head. If you are wearing a brown shirt or blouse, stand up and touch your knees." Continue this procedure until everyone is participating. Say, "Different groups are doing different things because we are separated by the colors we are wearing. Are there other ways we might separate into groups?" (hair or eye color, sneakers or shoes...)

Prepare a pictograph which compares the number of ice cream cones Peter ate in July with the number he ate in December.
e.g.,



Divide the class into several groups. Ask the students to write one question per group on a sheet of paper and share their questions with the class. After each student answers, he/she should explain his/her answer.

2.12.01

2.12.01.01 **collect, tabulate and arrange data on a table**

STRATEGY 1: Prepare and display the table below. Survey the students for their favorite flavors and make tally marks for each student.

e.g.,

FAVORITE FLAVORS

Chocolate	Vanilla	Strawberry
𝍸	//	///

Ask a student to count the number of students who like each flavor and write the number under the tally marks. Say, "A table and tally marks make it easier to count the total number of students who like a certain flavor. Data or information is easier to collect when we use a table or a chart."

Repeat this procedure using favorite foods.

STRATEGY 2: Say, "Each day I must record the number of boys and girls who are in school. The job is easier if I use a chart or a table." Draw the following table on the chalkboard.

e.g.,

ATTENDANCE

Day of the Week	Boys	Girls
Monday		
Tuesday		
Wednesday		
Thursday		
Friday		

STRATEGY 2: cont'd

Ask a student to count the boys and make one tally mark for each boy on the chart. Ask another student to repeat this procedure for the girls. Be sure that the students tally the marks by fives. e.g., 𝍸

Ask a third student to count by fives to find the total attendance for boys. Repeat this procedure for the girls.

2.12.01.02 **compare data in a table**

STRATEGY 1: Survey the students as to their favorite fruit. Make a table of the items and tally the selections. Say, "How many students like apples? ...peaches? ...strawberries? Which fruit do students like the most?...the least? How many more students like peaches than apples?" Repeat this type of questioning emphasizing the comparison of data, using other objects/items.

STRATEGY 2: Prepare and display the following chart.

	Color of Blocks		
	Red	Blue	Green
Number of Blocks			

Distribute a variety of blocks to groups of students. Say, "Count the number of red, blue, and green blocks that are on your desk." Ask one member of each group to record the information on the chart. Say, "How many red blocks are there? ...blue blocks? ...green blocks? Of which color are there more? ...less? How many more red blocks are there than blue?" Repeat this type of questioning emphasizing the comparison of data, using other objects/items.

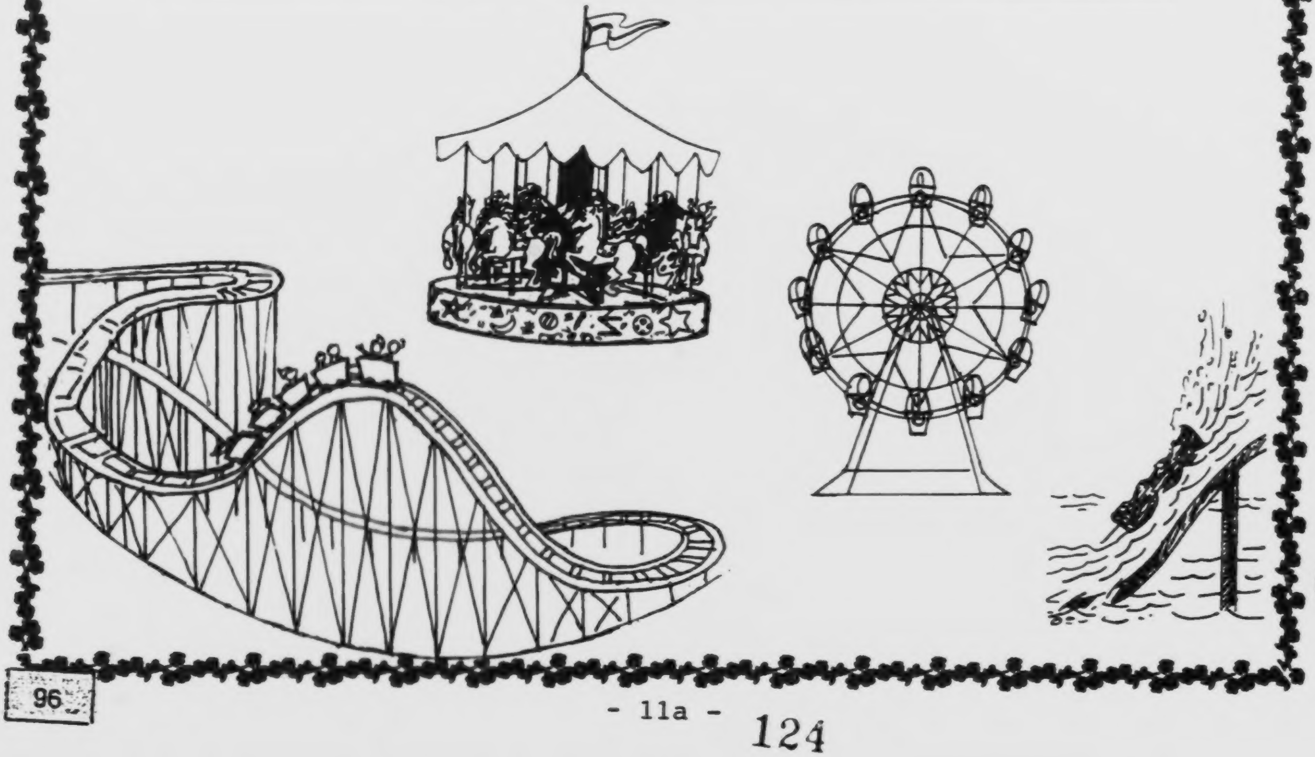
P.O. 2.12.01.01

NAME: ______________________ CLASS: ________ DATE: ________

Read the story. Complete the table by following the directions below.

Daisy Park has many exciting rides. On Sunday morning there were 12 riders on the roller coaster, 8 riders on the log ride, 10 riders on the ferris wheel and 20 riders on the carousel. A fun time was had by all.

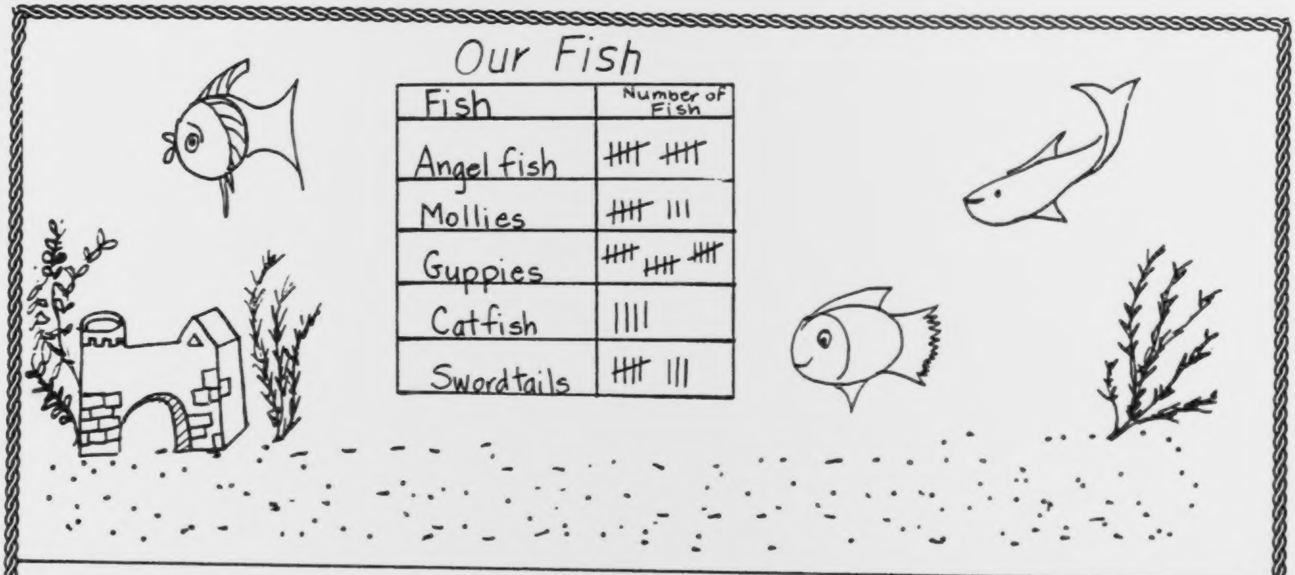
RIDES	NUMBER OF RIDERS
Roller Coaster	𝍸 III



P.O. 2.12.01.02

NAME: ______________________ CLASS: __________ DATE: ________

Read the table. Use the information from the table to answer the questions.



Our Fish

Fish	Number of Fish
Angel fish	卌 卌
Mollies	卌 III
Guppies	卌 卌 卌
Catfish	IIII
Swordtails	卌 III

1. Which group has the greatest number of fish? __________

2. Which group has the fewest fish? __________

3. How many more swordtails are there than catfish? __________

4. How many fewer mollies are there than angelfish? __________

5. Which groups have an equal number of fish? _______ and _______

DO YCU REMEMBER?

Do each problem. Circle the answers that are greater than 7.

$\begin{array}{r} 6 \\ +7 \\ \hline \end{array}$ $\begin{array}{r} 9 \\ +9 \\ \hline \end{array}$ $\begin{array}{r} 3 \\ +9 \\ \hline \end{array}$ $\begin{array}{r} 14 \\ -7 \\ \hline \end{array}$ $\begin{array}{r} 16 \\ -9 \\ \hline \end{array}$ $\begin{array}{r} 12 \\ -7 \\ \hline \end{array}$

2.14.03 ADDITION AND SUBTRACTION FACTS

(ongoing)

PERFORMANCE OBJECTIVES

The student will be able to...

2.14.03.01 recall addition facts through 18; e.g.,

10 + 8 = 18   7 + 3 = 10   2 + 8 = 10

2.14.03.02 recall subtraction facts through 18. e.g.,

10 - 8 = 2   7 - 3 = 4   18 - 9 = 9

2.14.03

VOCABULARY

TERMS

sum
difference

GETTING STARTED

Display a group of three blocks, cubes, or pencils. Say, "How many blocks are in this group?" Ask one student to count the blocks. Display another group of two blocks. Say, "How many blocks are in this group? Let's join the two groups of blocks. How many blocks are in this new group? How can we find out how many? (count them) The new group is larger than either of the original two groups."

Repeat this procedure to show that when we join groups together we are adding.

Display a group of five blocks. Say, "How many blocks are there in this group? How can you tell?" Ask a student to count the blocks. Say, "If we take away or remove two blocks how many are left? Will this group be larger or smaller? Why?" Remove two blocks and say, "How many blocks were taken away?" Ask a student to count the group that was removed. Say, "How many blocks remain?" Ask the students to count what is left. Elicit that when we subtract we are left with a smaller amount.

2.14.03

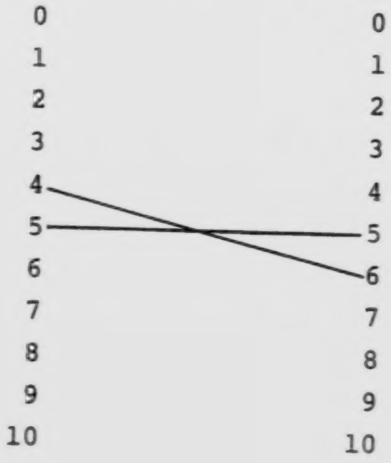
2.14.03.01 **recall addition facts through 18**

STRATEGY 1: Prepare and display 9 green blocks and 3 yellow blocks. Say, "Let's join the two groups of blocks and see how many there are in all." Ask a student to join the blocks. Write an addition sentence on the chalkboard to describe what happened. (9+3=12) Say, "What is another way of writing this number fact?" Write $\begin{array}{r}9\\+3\\\hline 12\end{array}$ on the chalkboard.

Repeat this procedure with various groups of yellow and green blocks. Ask students to write the addition facts on the chalkboard both vertically and horizontally.

STRATEGY 2: Write the numerals 0 through 10 in one column and 0 through 10 in another column. Say, "Who can find a numeral in the first column and a numeral in the second column that, when added, will equal 10?" (5+5, 6+4,...) Ask the student to draw a line to connect the two numerals.

e.g.,



2.14.03

STRATEGY 2: cont'd

Write the addition sentence on the chalkboard. Say, "Write the addition sentence 5+5=10 or $\begin{array}{r}5\\+5\\\hline 10\end{array}$ in your notebook. Who can find another pair of numbers whose sum is 10?" Continue the above procedure.

Repeat this procedure with other sums through 18. Ask the students to write each sum vertically and horizontally.

2.14.03.02 to recall subtraction facts through 18

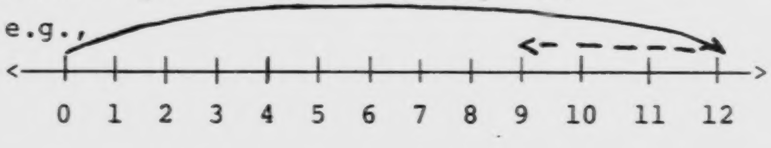
STRATEGY 1: Prepare 18 blocks or other counting objects, e.g., blocks, chips, beans, buttons. Display 10 objects. Say, "Let's take away 7 objects. How many are left?" Record the results on a chart.
e.g.,

Number of Blocks	Number Subtracted	Number Left	Subtraction Sentence
10	7	3	10-7=3
12	8	4	$\begin{array}{r}12\\-\ 8\\\hline 4\end{array}$

Select a different number of objects and repeat this procedure.

STRATEGY 2: Draw a number line from 0 through 18 on the chalkboard. Ask a student to come to the chalkboard. Say, "Start at zero and move 12 spaces. Name the stop. (12) Move back 3 spaces. Name the stop. (9)

e.g.,



Who can write a number sentence to describe the subtraction move on the number line? (12-3=9) Write the subtraction sentence in your notebook."

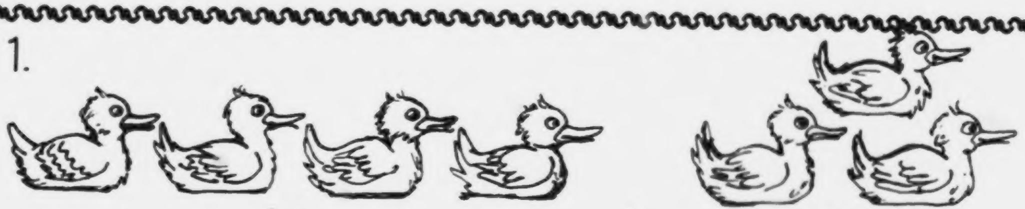
Repeat this procedure to recall other subtraction facts through 18.

P.O. 2.14.03.01

NAME: ____________________ CLASS: __________ DATE: ________

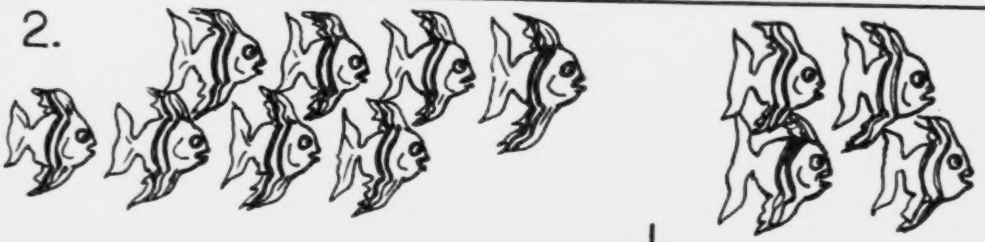
Find the sums.

1.



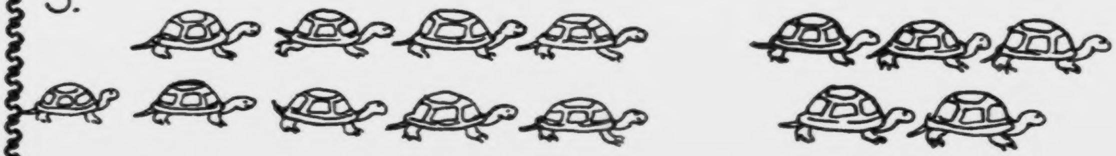
4 + 3 = ______

2.



______ + ______ = ______

3.



______ + ______ = ______

Add the numerals.

7+8 = ____

5+9 = ____

$$\begin{array}{r} 9 \\ +\ 2 \\ \hline \end{array}$$

9+4 = ____

8+9 = ____

$$\begin{array}{r} 8 \\ +\ 6 \\ \hline \end{array}$$

8+8 = ____

7+7 = ____

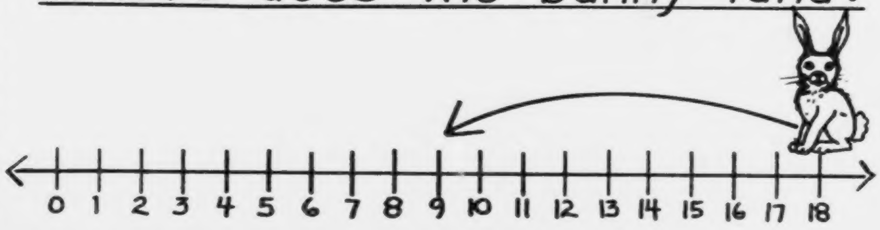
$$\begin{array}{r} 9 \\ +\ 9 \\ \hline \end{array}$$

P.O. 2.14.03.02

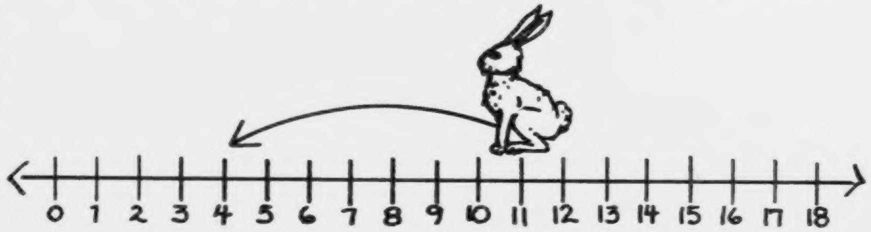
NAME:____________________ CLASS:________ DATE:_______

Find the difference.

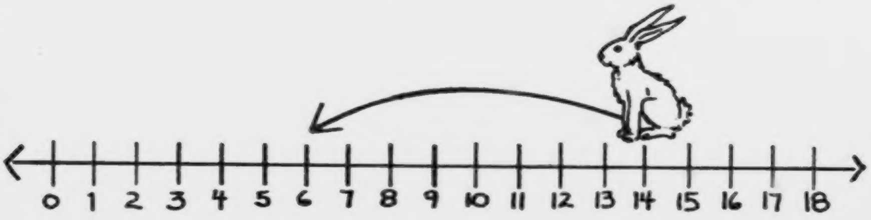
Where does the bunny land?


0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18

18-9= ☐


0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18

11-7= ☐


0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18

14-8= ☐

Find the differences.

18-9=____ 12-5=____ 17-9=____

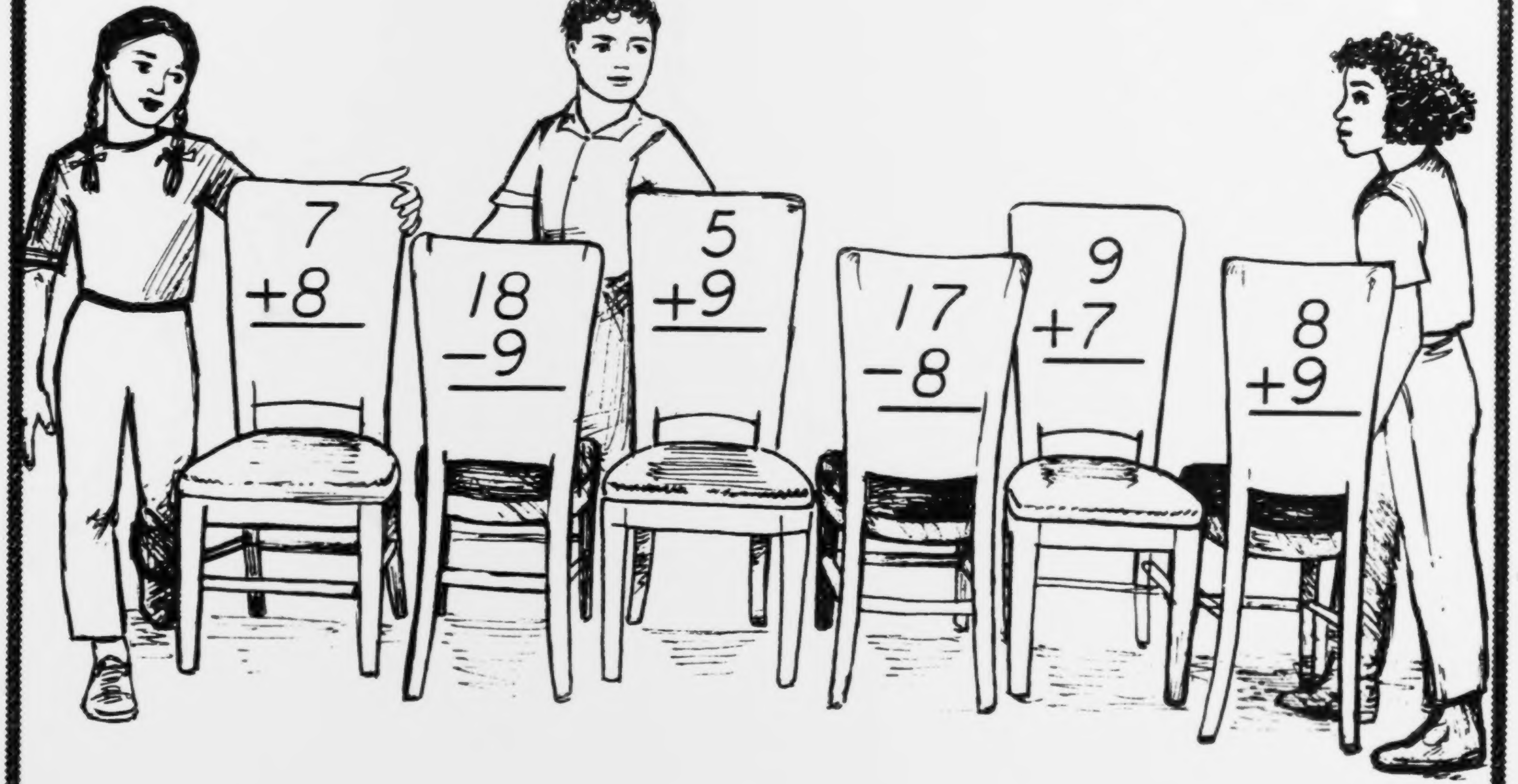
11-4=____ 14-9=____ 15-8=____

$\begin{array}{r}14\\-\ 7\\\hline\end{array}$ $\begin{array}{r}13\\-\ 6\\\hline\end{array}$ $\begin{array}{r}16\\-\ 7\\\hline\end{array}$

P.O. 2.14.03.01-.02

NAME: ______________________ CLASS: __________ DATE: __________

Play mathematical chairs by completing each example.


7
+8
18
−9
5
+9
17
−8
9
+7
8
+9

104

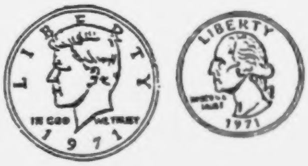
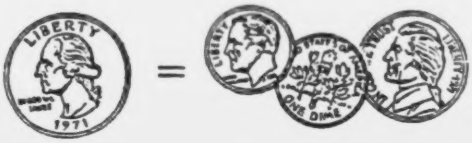
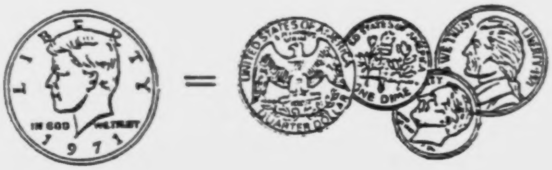
- 12c -

2.10.02 QUARTERS, HALF-DOLLARS

(2 lessons)

PERFORMANCE OBJECTIVES

The student will be able to...

2.10.02.01A	recognize and identify a quarter and a half-dollar; e.g., 
2.10.02.02A	identify equivalent values of a quarter using dimes, nickels and pennies; e.g., In value 
2.10.02.03B	identify equivalent values of a half-dollar using quarters, dimes, nickels and pennies; e.g., In value 
2.10.02.04A	solve story problems related to skills learned in this module. e.g., Joe has one coin. It is worth two dimes and one nickel. What coin does Joe have?

2.10.02

VOCABULARY

TERMS	SYMBOLS
quarter	25¢
half-dollar	50¢

GETTING STARTED

Prepare and distribute to the students rexographed coin representations of pennies, nickels, and dimes. (See resource material pp. xxix and xxx.) Display a penny and say, "What is the name of this coin? How much is it worth?" Repeat this procedure with the nickel and the dime. Give the students time to examine and compare the coins so they can note similarities and differences. Say, "Which is the smallest? ...the largest? Which coin will buy the least?...the most? Can you tell how much the coin is worth by looking at its size?" Place the dime on the flannelboard and say, "This represents a dime. It is worth 10¢. What is another way to make 10¢?" Ask the students to come to the flannelboard and use various combinations to represent 10¢. Repeat this procedure for a nickel.

Distribute pennies, nickels, and dimes to pairs of students. Say, "Show six pennies. How much money is this worth? (6¢) Use two coins to show another way to make 6¢. Now show ten pennies. How much money is this worth? (10¢) What coin on your desk is worth exactly 10¢? (a dime) Show other combinations for 10¢."

2.10.02

2.10.02.01 **recognize and identify the value of a quarter and a half-dollar**

STRATEGY 1: Prepare large coin representations of a penny, nickel, dime, quarter, and half-dollar. Review the values of a penny, nickel, and dime. Draw a table on the chalkboard.

e.g.,

Coin	Value
penny	1¢
nickel	5¢
dime	10¢

Display a quarter and ask students to identify this coin. Elicit from the students that this coin is called a quarter and it is worth 25¢. Say, "How many pennies is a quarter worth?" (25) Add the quarter and its value to the table. Display a half-dollar and say, "How much money is this coin worth?" Elicit from the students that this is a half-dollar and it is worth 50¢. Ask the students how many pennies 50¢ is worth. (50) Compare the quarter and the half-dollar and note the similarities and differences. "Which is larger? Which is smaller? What is the same? (The color, the words "In God We Trust") Which is worth more? ...less?" Ask the students what they think they could buy with a quarter and with a half-dollar.

STRATEGY 2: Prepare play money (quarters and half-dollars) for each student or group of students. Distribute the coins. Display a quarter and say, "What is the name of this coin?" Elicit that it is a quarter. Say, "How much is a quarter worth?" Elicit that a quarter is worth 25¢. Ask the students to pick up a quarter from the coins on their desks.

STRATEGY 2: cont'd

Point out that on one side of the quarter is a picture of George Washington and on the other side is a picture of an eagle. Say, "What do you think you can buy with a quarter?" (accept reasonable answers) Display a half-dollar and repeat the procedure noting characteristics of the half-dollar. (It is larger, has a picture of President Kennedy...) Ask the students what they could buy with a half-dollar.

2.10.02.02 **identify equivalent values of a quarter using quarters, dimes, nickels, and pennies**

STRATEGY 1: Prepare sets of toy coins, including pennies, nickels, dimes, and quarters. Display a quarter to the class and ask its value. Say, "Today we are going to see what other ways we can make 25¢." Ask the students to count out 25 pennies and to arrange them in groups of five. Say, "What one coin has the same value as the 25 pennies?" (a quarter) Ask the students to replace each group of five with a coin that has the same value. (a nickel) Say, "How many coins do you have now? (5) What is the name of each coin? (nickel) Which coin has the same value as five nickels?" (a quarter) Ask the students to replace two of the nickels with one coin of the same value. (They now have one dime and three nickels.) Say, "Which coin has the same value as these coins?" (a quarter) Repeat this procedure for two dimes and five pennies, asking the students to find a few more equivalent values for the quarter.

2.10.02

STRATEGY 2: Prepare coin bags for each student, or small group of students. Each bag must contain 25¢ in any variety of coins. Set up a classroom auction with several small items, all labeled with price tags saying 25¢. State that each item is worth 25¢, but they must have the correct coins in their bag to purchase the item. Hold up an item and say, "This costs 25¢." Any student wanting to buy the item must have the correct coin(s) representing the amount. Write the combinations on the chalkboard chart as they are bought.

e.g.,

Item	25¢
Ruler	2 dimes + 1 nickel
Book	25 pennies
Eraser	1 dime + 3 nickels
Chalk	1 dime + 15 pennies

2.10.02.03 **identify equivalent values of a half-dollar using quarters, dimes, nickels and pennies**

STRATEGY 1: Prepare and display play money coins: half-dollar, quarter, dime, nickel, and 50 pennies in piles of ten each. Say, "How many pennies are in each pile?" Ask a student to count pennies in one pile. Say, "How can we tell how many pennies are in the other four piles without counting them?" Elicit that we can measure them against the counted pile to see if they are the same height. Say, "How many piles are there?" Elicit that there are five piles. Say, "Let's count the number of pennies." Ask a student to stand near the displayed coins. Say, "Find the coin that has the same value as the collection of 50 pennies."

STRATEGY 1: cont'd

Replace each pile of ten pennies with the coin(s) of equivalent value, e.g. replace the five piles of pennies with five dimes. Say, "How much are the five dimes worth? (50¢) Now, find one coin with the same value as the five dimes." Repeat the above procedure for nickels and quarters.

Review coin equivalency by creating a chart and eliciting the equivalent values from the students. e.g.,

50 pennies = 1 half-dollar
5 dimes = 1 half-dollar
3 dimes, 4 nickels = 1 half-dollar
1 quarter, 2 dimes, 1 nickel = 1 half-dollar

STRATEGY 2:

Prepare coin play money of all denominations. Display a money chart on the chalkboard. e.g.,

WAYS TO MAKE 50¢

half-dollar	quarter	dimes	nickels	pennies
				50

Say, "Let's see how many different ways you can make 50¢." Ask five students to count out 10 pennies each. Say, "How many pennies have been counted? How much are 50 pennies worth? What coin has the value of 50¢?" (a half-dollar) On the chart write 50 in the pennies column. Say, "What other combinations of coins are worth the same as a half-dollar?" Assist the students in making 50¢ combinations from pennies, nickels, dimes, and quarters, and fill in each combination on the chart.

STRATEGY 2: cont'd

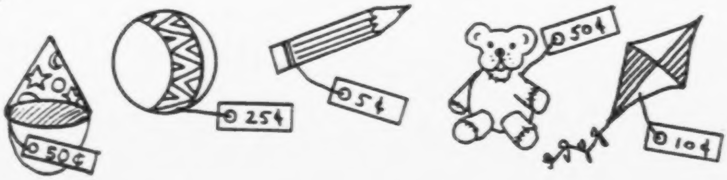
WAYS TO MAKE 50¢

half-dollar	quarter	dimes	nickels	pennies
				50
		1		40
		2		30

Repeat this procedure to record many combinations of coins that are equivalent to a half-dollar.

2.10.02.04 **solve story problems related to skills learned in this module**

STRATEGY 1: Display pictures of toys, each labeled with prices of either 5¢, 10¢, 25¢ and 50¢.
e.g.,



Point to a picture and say, "How much does this cost? (50¢) If you buy this party hat, what coins would you give to the storekeeper? Can anyone think of another combination of coins to use?" (Accept any combination which equals 50¢.) Continue until students have suggested several combinations of coins which total 50¢. Repeat this procedure for the other pictures.

STRATEGY 2: Prepare and display containers, each holding play money, e.g., one half-dollar, 2 quarters, 5 dimes, 10 nickels, 50 pennies. Say, "I will tell you a story. At the end of the story, I will ask you a question. 'Connie bought an apple that cost 25¢. What coins could she have given the store keeper that are equal to 25¢? (Accept any combinations of

STRATEGY 2: cont'd

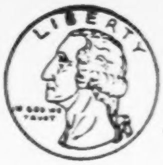
coins that equal 25¢.) Ask a student to go to the correct container and count out the amount stated in the problem. Say, "What other combinations of coins could Connie have used to pay for the apple?" Repeat this procedure by telling other stories using varying amounts to 50¢.

P.O. 2.10.02.01

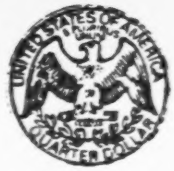
NAME: ______________________ CLASS: ________ DATE: ________

Follow the directions in each part.

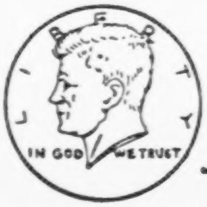
A. Write the value of each coin.


LIBERTY
IN GOD WE TRUST

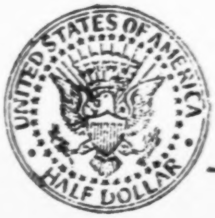
____


UNITED STATES OF AMERICA
QUARTER DOLLAR

____

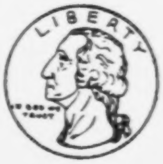

LIBERTY
IN GOD WE TRUST

____

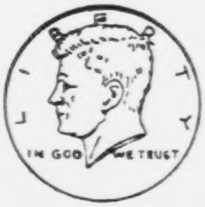

UNITED STATES OF AMERICA
HALF DOLLAR

____

B. Match the coin to its value.


LIBERTY
IN GOD WE TRUST

half-dollar

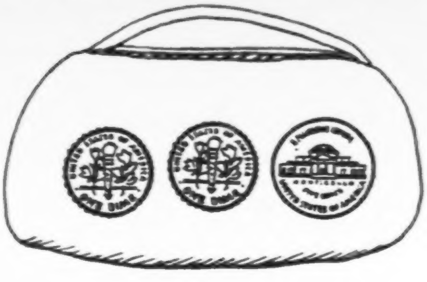

LIBERTY
IN GOD WE TRUST

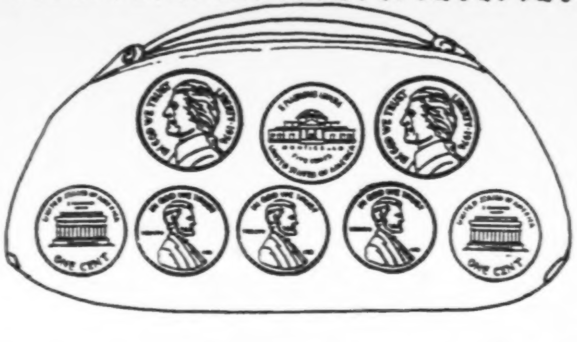
quarter

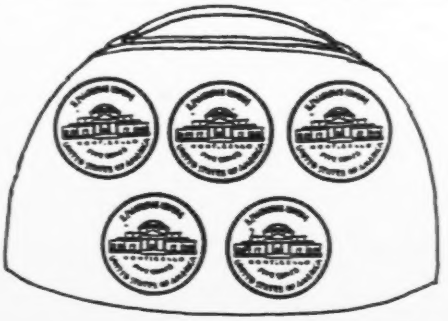
P.O. 2.10.02.02

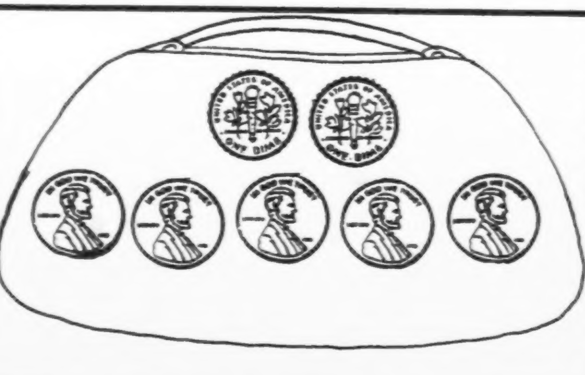
NAME:________________________ CLASS:________ DATE:________

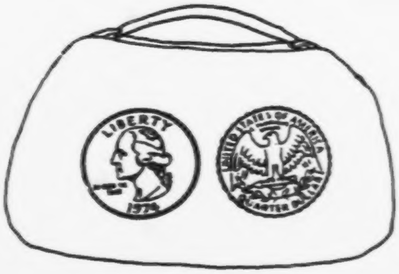
Color the purses having coins equal in value to 25¢.

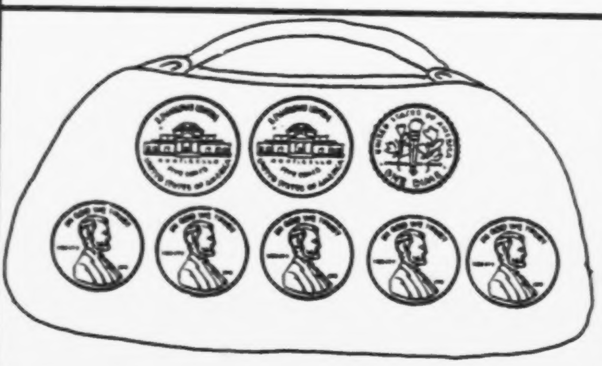


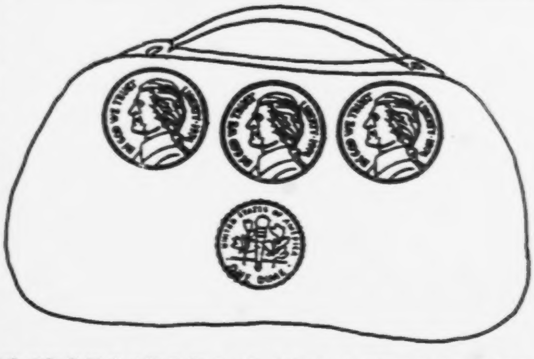


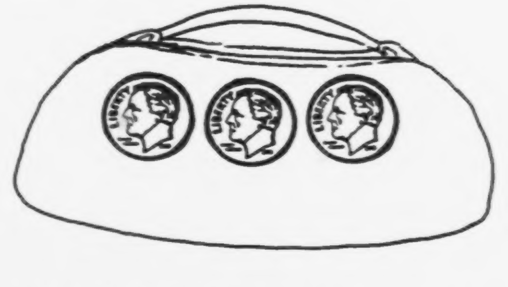










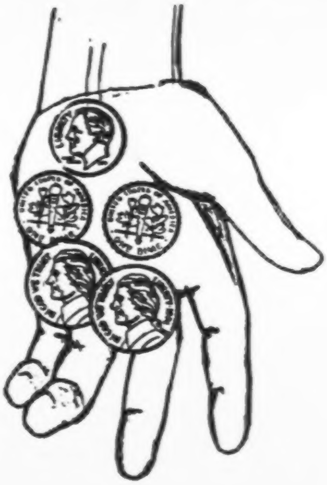


P.O. 2.10.02.03

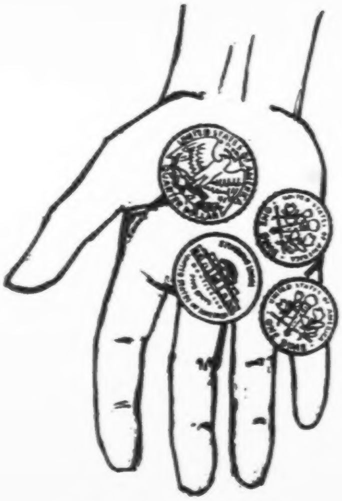
NAME: ____________________ CLASS: ________ DATE: ________

Follow the directions below.

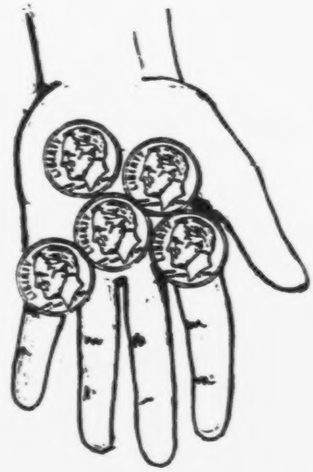
You have a half-dollar. With which students could you exchange your coin and still have 50¢? Circle their names.



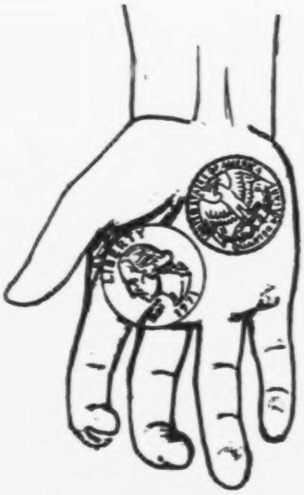
Anne



George



Sam



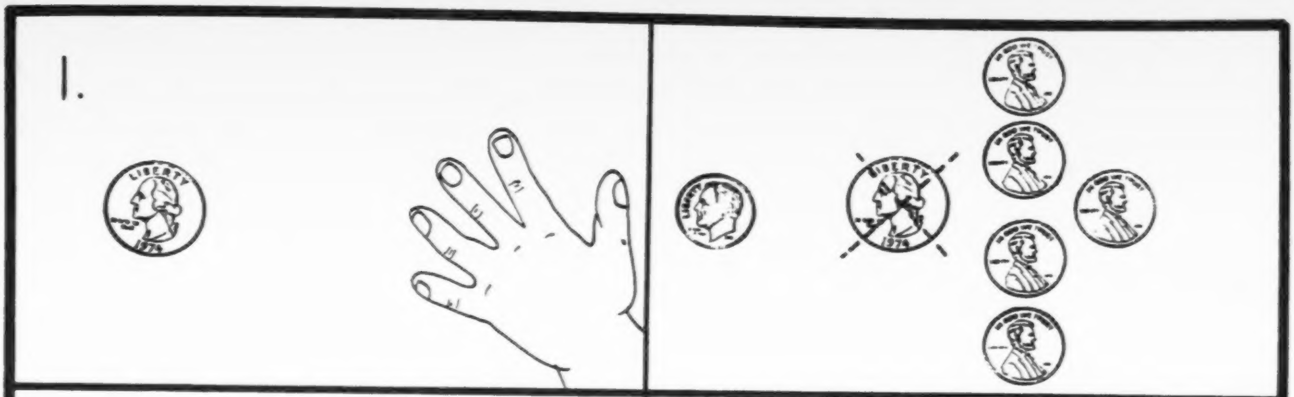
Nina

P.O. 2.10.02.03

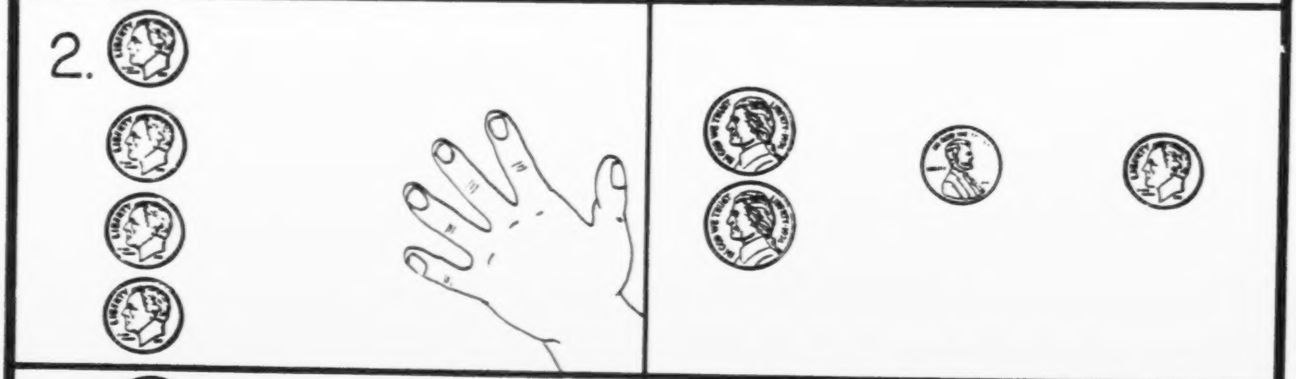
NAME: ______________________ CLASS: ________ DATE: ________

Which coin(s) is (are) the hand hiding? Each box has coins that equal 50¢. Draw an X on the hidden coin(s).

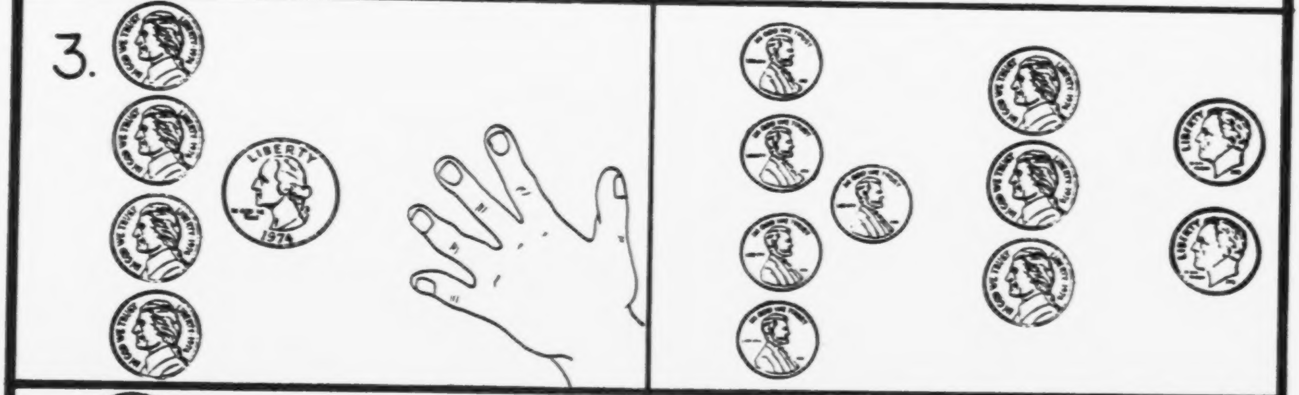
1.



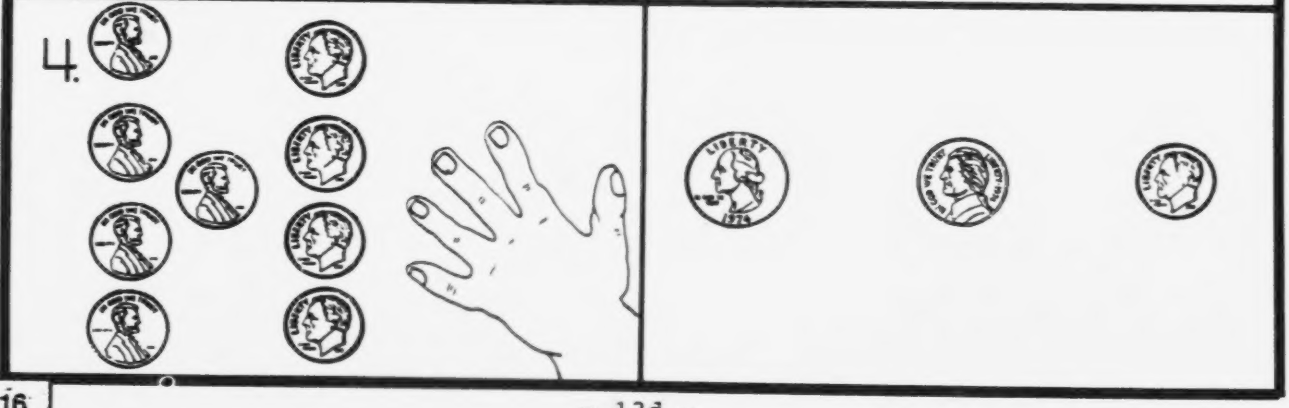
2.



3.



4.



P.O. 2.10.02.04

NAME: ______________________ CLASS: __________ DATE: ________

Follow the directions in each part.

1. Anita bought a top for two dimes and a nickel. How much money did she spend?

25¢

2. Jose washed the dishes. His mother gave him 5 dimes. How much money did he receive?

____

3. Roslynn counted the money in her bank. She counted 3 nickels and a dime. How much money did she have?

____

4. Connie gave the lady 5 nickels for an apple. How much money did she give her?

____

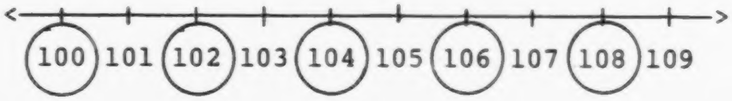
2.01.05 EVEN AND ODD NUMBERS

(2 lessons)

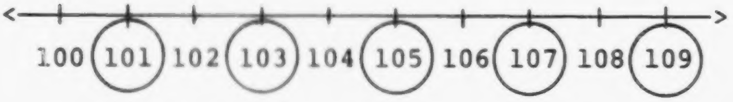
PERFORMANCE OBJECTIVES

The student will be able to...

*2.01.05.01A identify even numbers from 100 through 1000; e.g.,


100
101
102
103
104
105
106
107
108
109

*2.01.05.02A identify odd numbers (not even) from 101 through 999; e.g.,


100
101
102
103
104
105
106
107
108
109

*2.01.05.03A complete even and odd number sequences. e.g.,

300 , 302 , 304, ☐

301 , 303 , ☐

2.01.05

VOCABULARY

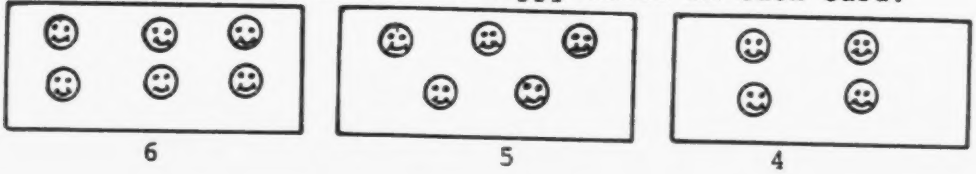
TERMS

odd
even

GETTING STARTED

Ask eight students to form pairs in the front of the classroom. Count the students by twos, e.g., 2,4,6,8. Ask nine students to form pairs in the front of the classroom. Count the students by twos, e.g., 2,4,6,8. Say, "We have one student without a partner. He/she is the extra one. The extra one tells us that 9 is called an odd number. The numbers 0,2,4,6,8,10,12... are even numbers and the numbers 1,3,5,7,9,11... are odd numbers." Show a card with a number fact written on it and ask the students to tell whether the answer is odd or even, e.g., $\begin{array}{r}3\\+4\\\hline 7\end{array}$. Seven is an odd number.

Prepare several large cards with drawings of happy faces. Ask a student to identify the number of happy faces on each card.
e.g.,



Say, "On which card does each face have a partner? These numbers are called even numbers. What do we call the other numbers? They are odd numbers."

2.01.05

2.01.05.01 **identify even numbers from 100 through 1000**

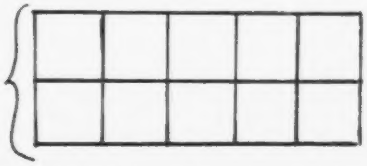
STRATEGY 1: Write these numbers on the chalkboard: 0, 2, 4, 6, 8, 10, 12, 14, 16, 18, 20... Say, "Can anyone see a pattern?" (Counting by twos or adding twos.) Write 122, 124,...846, 848 on the chalkboard. Say, "What digit is in the ones place in each of these numbers? If a number is even, it will always have a 0,2,4,6, or 8 in its ones place."

Present a story problem to the class. Say, "The PTA is selling tickets to the school picnic. The tickets come in booklets numbered from 100 through 1000. Only the students can buy the even numbered tickets since they cost less money. Tickets 145, 256 and 758, are not yet sold. Which tickets could a student buy? (256, 258) Why?"

Repeat this procedure using other groups of numbers.

STRATEGY 2: Prepare and distribute five 2" x 5" strips of grid paper to each student or group of students. Say, "We will see which digits, 0 through 9, are even. Numbers are even if they can form partners." Point to the top left-hand box on the grid paper. Say, "To how many boxes am I pointing? (1) Does one have a partner? (No) Then one is not an even number. Point to the top and bottom boxes on the left."

e.g.,

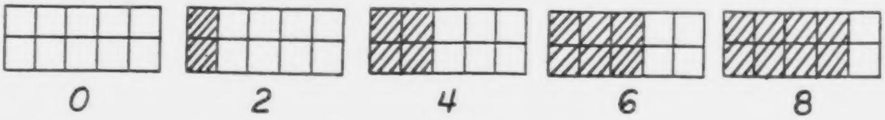


Say, "To how many boxes am I pointing? (2) Are these boxes partners? (Yes) Two is an even number. Shade

STRATEGY 2: cont'd

in these two boxes on your grid paper." Using one 2" x 5" strip of grid paper for each even number, repeat this procedure through 9.

e.g.,

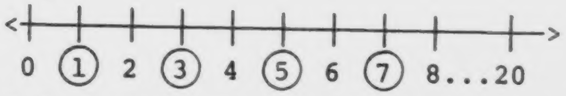


One sheet of paper is blank to show that zero is an even number. Elicit from the students the numbers which have partners and are even. (0, 2, 4, 6, 8) Say, "Any number which has a 0, 2, 4, 6 or 8 in its ones place is an even number." On the chalkboard write the numeral 346. Ask a student to read the number. Say, "What digit is in the ones place? (6) Is 6 an even number? (Yes) Then 346 is an even number." Write several three digit numbers (both odd and even) on the chalkboard. Ask students to "test" each number to see if it is even by reading the number and identifying the digit in the ones place. If the number in the ones place is even, ask a student to draw a ring around it. If it is not even, ask a student to erase it.

2.01.05.02 **identify odd numbers (not even) from 101 through 999**

STRATEGY 1: Prepare and display a number line, 0 through 20, on the chalkboard. Draw a circle around all the odd numbers.

e.g.,



Ask the students to read the circled numbers. Say, "Do you see a pattern?" (Every other number is circled. Skip even numbers when counting. Only numbers ending with 1, 3, 5, 7 or 9 are circled.)

STRATEGY 1: cont'd

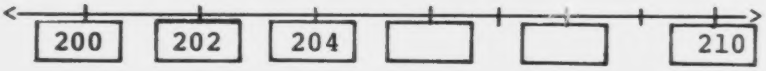
Say, "Any number which ends with 1, 3, 5, 7 or 9 is called an odd number." Point to the 11, 13, 15, 17 and 19 and have the students identify the digits in the ones places. Reinforce the patterning of odd numbers. Write several three-digit numbers on the chalkboard. Ask a student to read a number. Say, "What number is in the ones place? Underline it. Is the number in the ones place odd? If it is odd, then the whole number is odd." Repeat this procedure using the digits 1, 3, 5, 7 and 9 in the ones place to give the students practice in identifying odd numbers.

STRATEGY 2: Adapt Strategy 2 used in P.O. 2.01.05.01 for identifying odd numbers.

2.01.05.03 complete even and odd number sequences

STRATEGY 1: Prepare and display a number chart from 100 through 200 with the even numbers written in red and the odd numbers written in blue. Say, "Study the chart. Read the red numbers starting with 100. With what digit does each number end? (0, 2, 4, 6, 8) What kind of numbers end with 0, 2, 4, 6, or 8?" (even numbers) Point to 156 and say, "Who can locate the next even number? Who can read the blue numbers on the chart starting with 121 and stopping at 129? With what digits do these numbers end? (1, 3, 5, 7, 9) What kind of numbers end with 1, 3, 5, 7, and 9?" (Odd numbers) Point to the numbers and say, "131, 133, 135. What is the next odd number?" Repeat this procedure of pointing to even numbers.

STRATEGY 2: Prepare and display several number lines with incomplete even and odd, three-digit number sequences. e.g.,



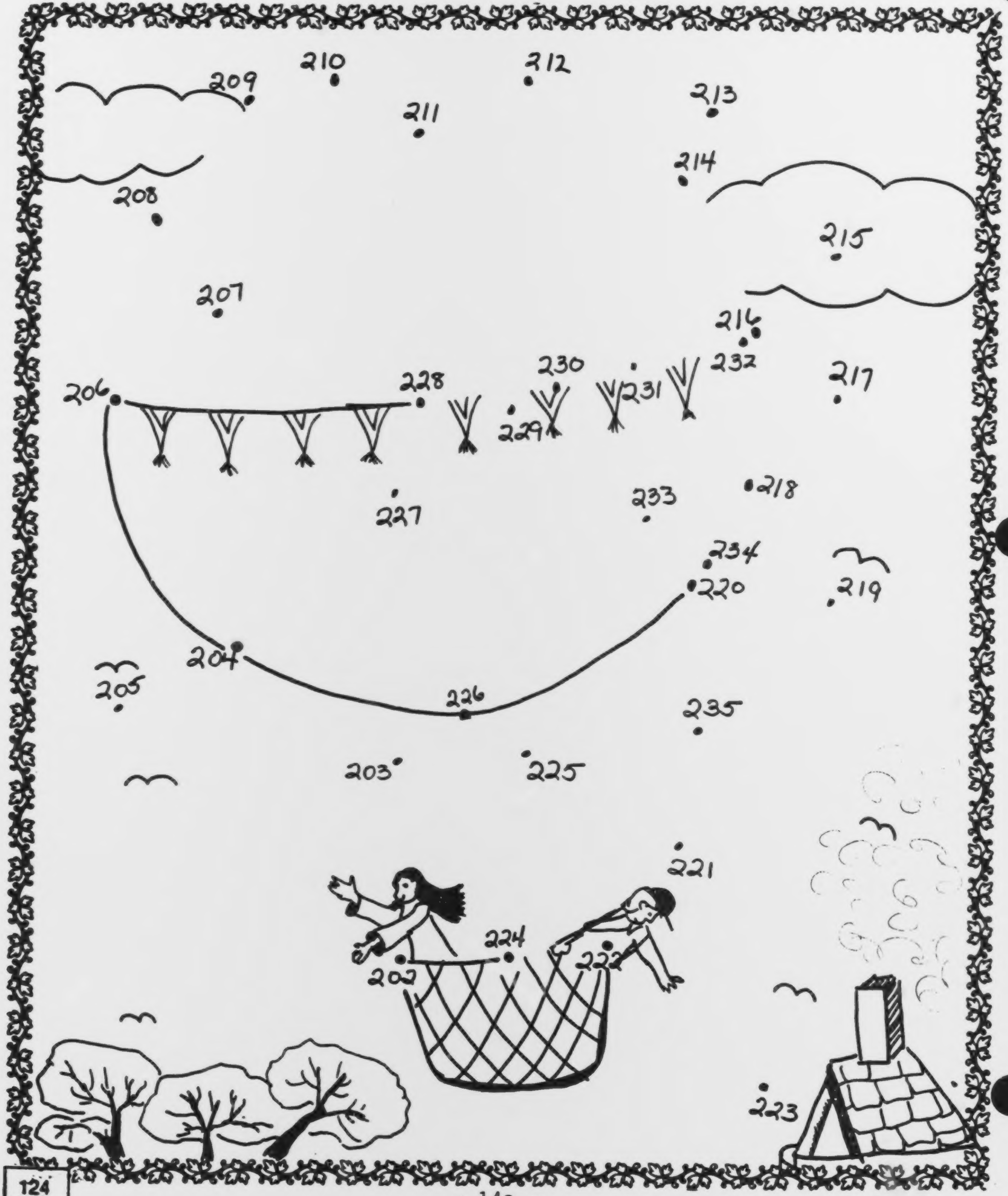
Say, "Look at the number line. Who can read the numbers in the boxes? What digit is in the ones place in 200? Zero is an even number. It is a special even number. What digit is in the ones place in the number 202. Is two odd or even? (even) What digit is in the ones place of 204? Is four odd or even? (even) What is the next even number after 4? (6) What number belongs in the next box? (206) Why?" Repeat this procedure filling in other missing numbers. Elicit reasons for selecting each number. Provide practice for completing even and odd number sequences.
e.g.,

400, 402, 404, ☐, ☐, ☐
401, 403, 405, ☐, ☐, ☐

P.O. 2.01.05.01

NAME:____**CLASS:**__________**DATE:**________

Connect the dots in order using only even numbers. Begin with 202 and end with 234. Color the picture.


209
210
212
211
213
214
208
215
207
216
230
232
206
228
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217
229
218
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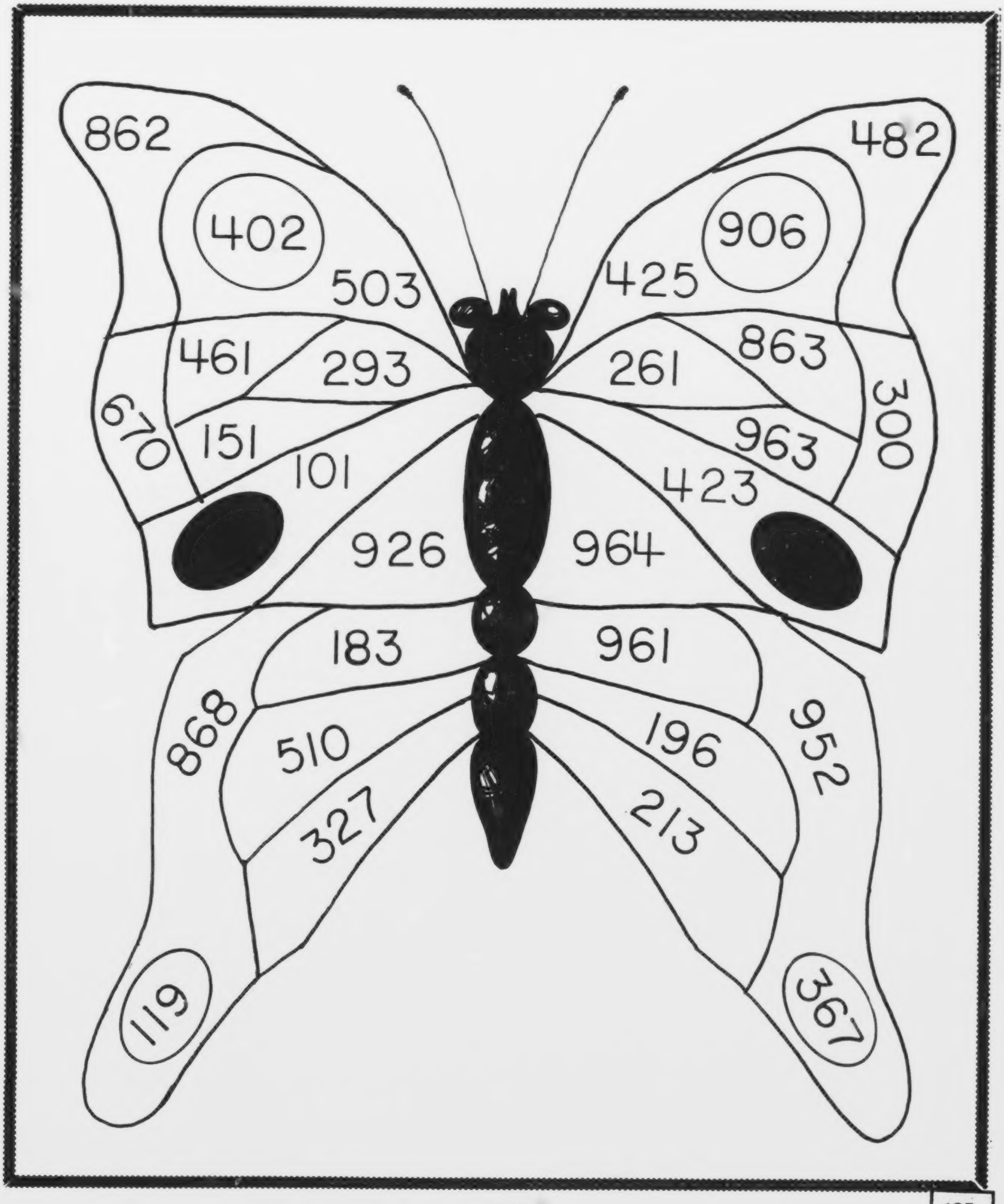
227
234
220
219
204
205
226
235
203
225
221
224
222
202
223

P.O. 2.01.05.02

NAME:____ **CLASS:**__________ **DATE:**________

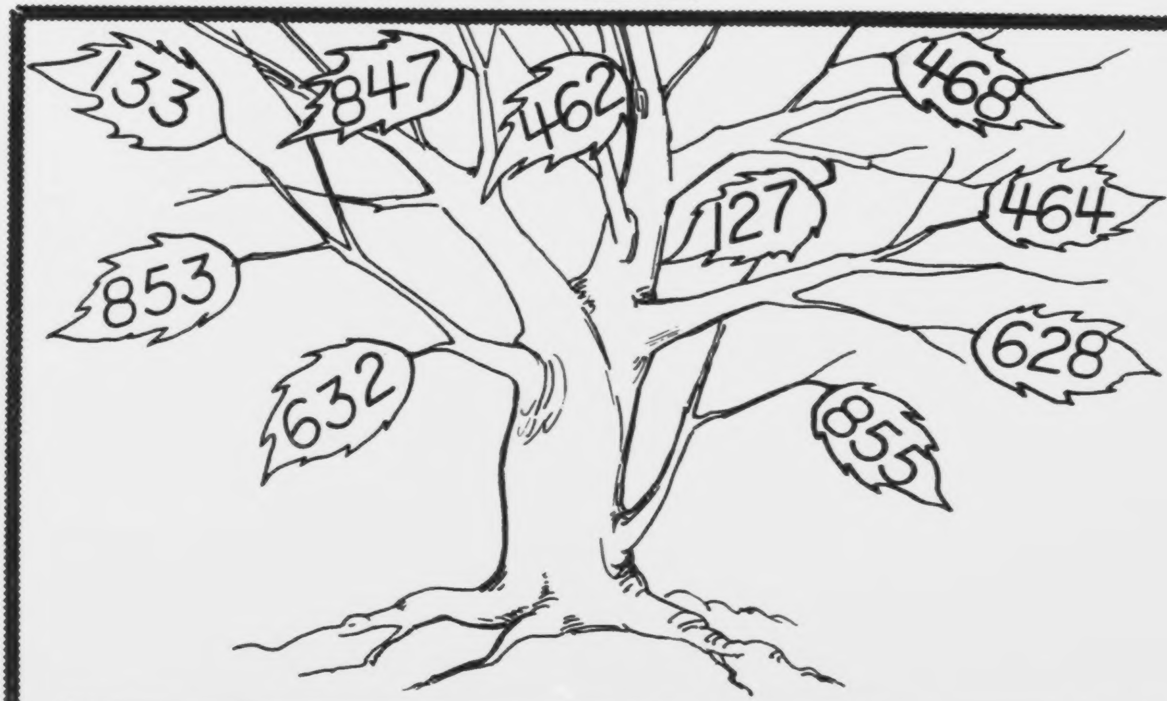
Color all odd numbers with one color.
Color all even numbers with a different number.

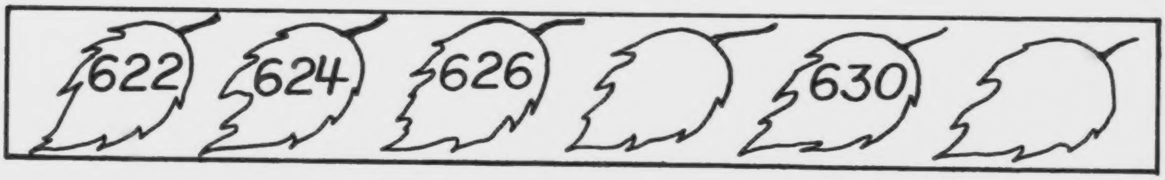

862
482
402
906
503
425
461
293
261
863
670
151
101
963
300
423
926
964
183
961
868
510
196
952
327
213
119
367

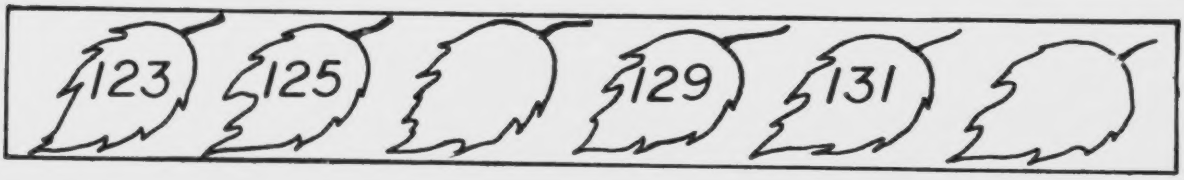
P.O. 2.01.05.03

NAME:______________________________ CLASS:_________ DATE:________

Complete each number sequence by using the numbers in the tree.
Color each leaf as you use its number.


133
847
462
468
127
464
853
628
632
855


622
624
626
630


123
125
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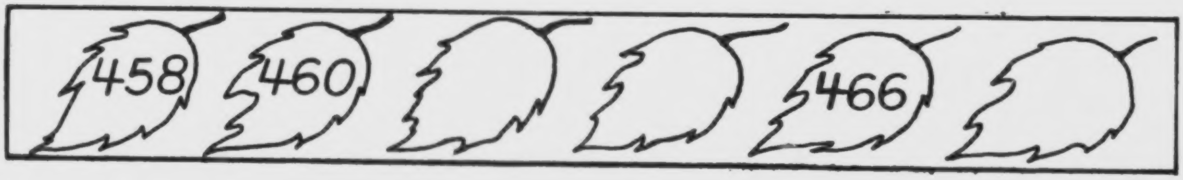
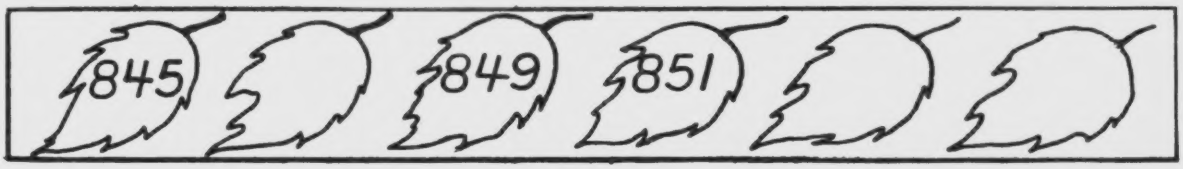
131





2.01.06 ROUND NUMBERS THROUGH 99 TO THE NEAREST TEN

(2 lessons)

PERFORMANCE OBJECTIVES

The student will be able to...

2.01.06.01A round a 2-digit number, having its ones digit less than 5, to the nearest ten; e.g.,

24 rounds to 20
13 rounds to 10

2.01.06.02A round a 2-digit number, having its ones digit more than 5, to the nearest ten; e.g.,

86 rounds to 90
17 rounds to 20

2.01.06.03A round a 2-digit number, having 5 in the ones place, to the nearest ten. e.g.,

15 rounds to 20
85 rounds to 90

2.01.06

VOCABULARY

TERMS

rounding
rounds to

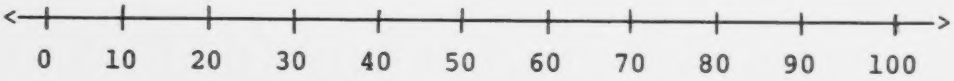
GETTING STARTED

Prepare and display index cards numbered from 10 through 20. Ask a student to tell if 17 is closer to the 10 or the 20.

Repeat this procedure using other numbers from 10 through 20.

Draw a tens number line on the chalkboard. Mark intervals 0 through 100.

e.g.,



Ask a student to look at the number line. Say, "Between which pair of tens does 32 belong?"

Repeat this procedure using other numbers.

157

2.01.06

2.01.06.01 **round a 2-digit number, having its ones digit less than five, to the nearest ten**

STRATEGY 1: Draw a number line on the chalkboard numbered 15 through 45. Place a disc above the multiples of ten. Say, "This is a number line which also shows us where the bus stops. Each bus stop is marked by a yellow disc. If you live at thirty-first street (point to 31) between which two bus stops do you live? (between 30 and 40) To which bus stop would you walk? (30) Why?" Elicit that the student would walk to the bus stop at 30 because 31 is closer to 30 than to 40. Say, "31 rounds to 30 because it is closer to 30 than to 40." Repeat this procedure using other numbers having ones digits less than 5. Ask students to determine between which two tens the number belongs and to which ten it is nearer.

STRATEGY 2: Prepare one set of numeral cards with multiples of ten (from 0 to 100). Prepare another set of numeral cards whose ones digits end with 1, 2, 3, or 4.

e.g.,

0 , 10 ,..., 100   2 ..., 21 ..., 94

Distribute one card to each student. Ask the student with number 52 to come to the front of the room. Say, "Look at your card. Between which pair of tens does 52 belong?" (50 and 60) Ask the students having cards 50 and 60 to come to the front of the room and display their cards. Say, "To which ten is 52 closer? Why?" Repeat this procedure using other numbers with the ones digit less than 5.

2.01.06

2.01.06.02 **round a 2-digit number, having its ones digit more than five, to the nearest ten**

STRATEGY 1: Prepare a paper bag, paper and a pencil. Display a number line numbered 15 through 45 on the chalkboard. Divide the class into two teams, A and B. Say, "Look at the number line. A student from the 'A' team will choose a number from the number line, write it on a slip of paper and place it in the bag. I will try to guess the number." Ask the students for clues, e.g., Is the number in the bag between 30 and 40? Is it closer (nearer) to 30 or to 40? Is the number ____? Ask the student if your guess is too high or too low, and then guess again.

Say, "I will choose a number, (a two-digit number with its ones digit more than 5), write it on a piece of paper and place it in the bag."

Ask students to guess the number by encouraging them to determine between which two tens the number belongs and to which ten it is nearer.

STRATEGY 2: Prepare a set of index cards with numbers 0-90. Make the tens cards larger and written in a contrasting color. Place the cards 30 and 40 on the chalk ledge. Say, "What numbers come between 30 and 40?" As the students respond, place these number cards on the chalk ledge in order.

e.g., 30 31 32 33 34 35 36 37 38 39 40

Say, "These cards are addresses of the buildings on Main Street. Cards 30 and 40 are school buildings on this street. The other cards show house numbers.

STRATEGY 2: cont'd

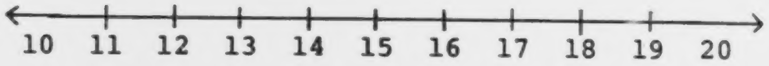
Students must attend the closest school. What school would be closest to the house numbered 37? (40) ...36? (40) ...39? (40)". After repeating this procedure using other numbers, place only tens on the chalk ledge. Say, "Without seeing the numbers that are in between, what would be the closest ten for this number?" Display a 2-digit number, having its one digit more than five and ask the students to place the card behind the nearest ten. Say, "When the digit in the ones place is 6,7,8 or 9, we round to the next ten."

Repeat this procedure until all the students have rounded a number.

2.01.06.03 **round a 2-digit number, having 5 in the ones place, to the nearest ten**

STRATEGY 1: Draw a number line, numbered 10 through 20, on the chalkboard (leave large spaces between the numbers).

Ask the students to count from 10 to 20. Say, "How many numbers come between 10 and 20 if we do not count 10 and 20? (9) Which number is in the middle?" e.g.,



Repeat this procedure, with other decades, e.g., 30 through 40. Elicit that 35 is the middle number. Say, "A number that ends in five is in the middle of a decade, and always rounds to the next higher ten."

e.g.,

25 is between 20 and 30

25 rounds to 30.

2.01.06

STRATEGY 2: Prepare a set of cards numbered from 20 to 90 in multiples of five.

e.g.,

20 25 30

Draw a number line from 20 to 50 using colored chalk to designate 25, 35, and 45, on the chalkboard. Say, "Why are the numbers ending with 5 entered in a different color?" (These are the "middle" numbers between each pair of tens. These numbers round to the next higher ten, e.g., 25 rounds to 30.)

Distribute all the cards to the class, asking the students with multiples of ten to come to the front of the classroom and stand in numerical order. Ask each remaining student to show his/her number and tell the ten to which it rounds.

Repeat this procedure until each student has had a chance to participate.

P.O. 2.01.06.01

NAME:______________________________ CLASS:__________ DATE:__________

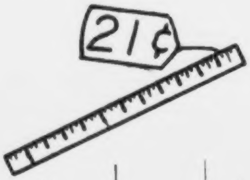
Between which tens is each number found?

20	24	30
	32	
	14	
	33	
	44	
	12	

Circle the ten closest to the number in the middle in each group of numbers below.

[✓ 30]	34	40
20	21	30
20	23	30
10	12	20
30	32	40
10	13	20

What is the price to the nearest dime?



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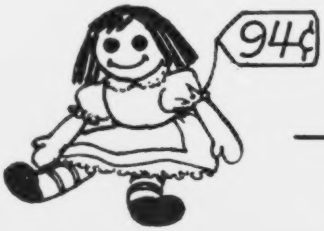

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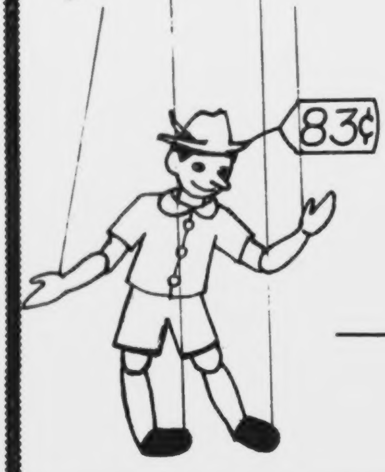

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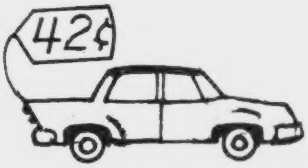

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P.O. 2.01.06.02

NAME:____________________ CLASS:__________ DATE:________

Round each number to the nearest ten.

IN	OUT
26	30
37	40
68	70
77	
88	

IN	OUT
79	80
58	
46	
38	
59	

IN	OUT
86	90
46	
57	
37	
89	

IN	OUT
76	80
69	
67	
87	
29	

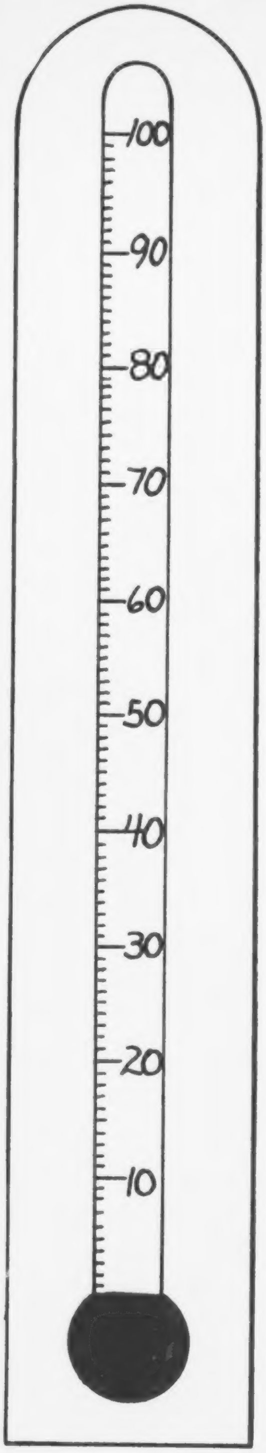
IN	OUT
16	20
47	
18	
27	
59	

IN	OUT
19	20
28	
46	
49	
86	

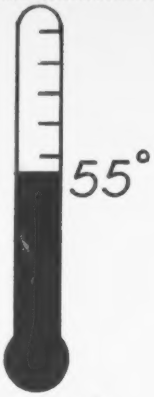
P.O. 2.01.06.03

NAME:______________________________ CLASS:________ DATE:________

Look at the large thermometer to help you round each number (temperature) to the nearest 10 degrees.



100
90
80
70
60
50
40
30
20
10



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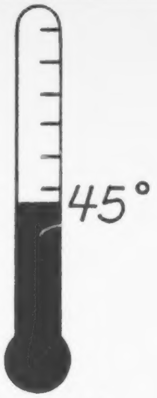

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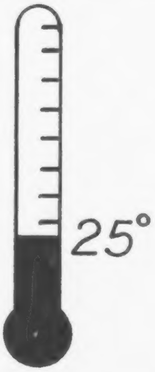

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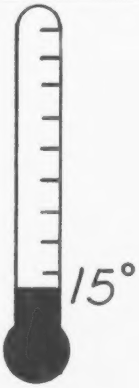

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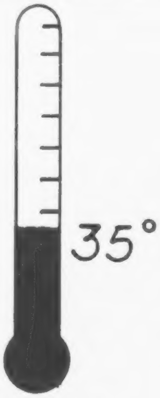

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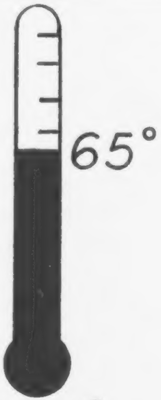

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________°

________°

2.09.01 POINTS, LINES, LINE SEGMENTS, AND RAYS AROUND US

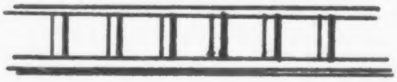
(2 lessons)

PERFORMANCE OBJECTIVES

The student will be able to...

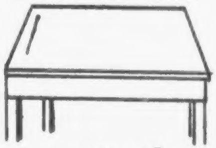
2.09.01.01B recognize points around us;
e.g.,
. point

2.09.01.02B recognize lines around us;
e.g.,
subway track

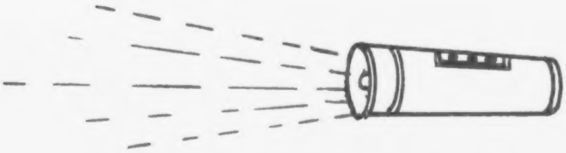


2.09.01.03B recognize line segments around us;
e.g.,

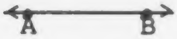
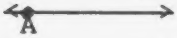
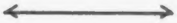
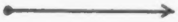
the side of the desk



2.09.01.04B recognize rays around us.
e.g.,
flashlight beam



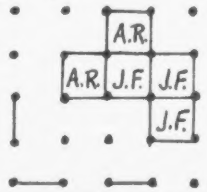
VOCABULARY

TERMS	SYMBOLS
line segment	
point	
line	
ray	

GETTING STARTED

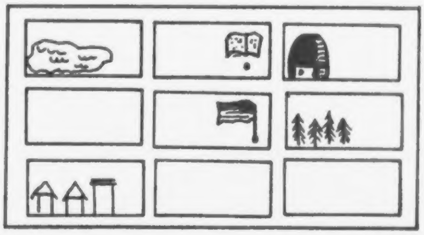
Prepare and distribute one sheet of dot paper (5 x 5 array) to each pair of students. Display a sheet of dot paper on the chalkboard. Say, "I will connect two dots with a line." Ask a student to come to the chalkboard to connect two more dots. Say, "The one who completes a square wins that square and writes his/her initials inside the square. The winner of the game is the one with the most initialed squares."

e.g.,



Prepare one-inch gummed circles or squares and a map of the neighborhood.

e.g.,



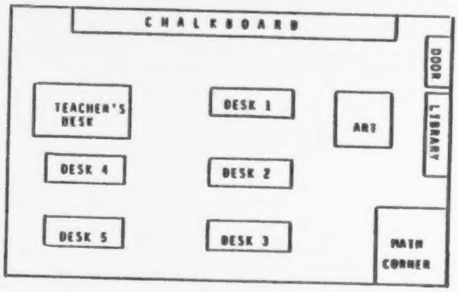
Say, "This is a map of our neighborhood. The flag marks the exact location of our school. The book marks the exact location of the library. The mailbox marks the exact location of the post office." Ask students to place circles to show these points on the map. Say, "What other points might we locate on this map?" Ask students to locate and mark other points, e.g., his/her house, a park.

2.09.01

2.09.01.01 recognize points around us

STRATEGY 1: Prepare and display a large cardboard diagram of the classroom, and several wood toothpicks having a flag at the top of each.

e.g.,



Say, "This is a plan or diagram of our class. There are many objects and pieces of furniture in the classroom. Each can be found in a different spot or point." Ask a student to show where desk #4 is by pointing to it. Say, "The place where desk #4 is located is a point in the room and can be located on the diagram." Ask a student to place a flag at that point on the diagram. Repeat this procedure by asking other students to place flags at given "points" on the diagram.

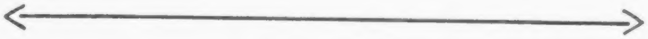
STRATEGY 2: Prepare several small circles cut from oaktag and backed with tape. Say, "Today we are going to mark the spot of several objects to show their exact location. Each spot we mark will be called a point and we will use these small circles to represent each point." Choose an object in the classroom, e.g., easel, table, library, and ask several students to mark the objects using the dots. Designate each dot with a letter of the alphabet, e.g., A, B, C,... Say, "Which object is marked point D,... point B?"

2.09.01

2.09.01.02 **recognize lines around us**

STRATEGY 1: Prepare some colored clothespins and a piece of string taped to the chalkboard. Ask a student to pin a clothespin on the string at a point near the middle of the string and mark that point on the chalkboard with a dot. Ask another student to pin a different color clothespin to the left of the first clothespin and to mark that point. Repeat this procedure until there are a number of points on the chalkboard. Ask a student to connect the points. Say, "What do you see? (a line) If I had a bigger chalkboard, could I extend the line each way? (Yes) Could I continue placing more points on the line? (Yes) A straight line can go on and on in either direction." Draw arrows on the line to show that the line can be extended in either direction.

e.g.,



STRATEGY 2: Prepare a yardstick. Ask two students to hold the yardstick against the chalkboard. Ask another student to pick a number from 1 to 36 and to place an X above the number he/she chose. Ask another student to repeat this procedure. Continue until there are a series of points. Ask a student to connect all the points. Say, "What do you see?" (a straight line) If I had a bigger chalkboard, could I continue placing more points? (Yes) Would the line get longer? (Yes) A straight line can go on and on in either direction." Place arrows on the line to show that the line can be extended in either direction.

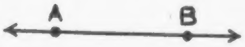
STRATEGY 2: cont'd

Repeat this procedure varying the position of the yardstick, e.g., diagonally, horizontally, vertically.

2.09.01.03 **recognize line segments around us**

STRATEGY 1: Prepare several large adhesive oaktag dots and several pieces of string. Ask the students to name various locations in the classroom and to mark them with the dots. Ask a student to describe the path he/she can take to get from the easel to the reading corner and two other students to use the string to demonstrate that path. **Note:** Be sure the path is a straight one. Explain that the straight path from one point to another is called a line segment. Repeat this procedure using other classroom locations.

STRATEGY 2: Prepare a yardstick and various pieces of colored chalk. Draw the following diagram on the chalkboard.

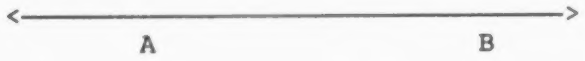


Ask the students to describe what they see, e.g., line, two arrow, points A and B. With a piece of colored chalk go over the line from point A to point B. Say, "The part of the line from point A to point B is called a line segment. The line segment has two end points, A and B." Repeat this procedure asking students to draw lines of various lengths on the chalkboard and to mark line segments with the colored chalk on each line.

2.09.01.04 **recognize rays around us**

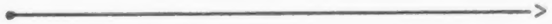
STRATEGY 1: Say, "We know that a line consists of many points which go on and on in opposite directions." Ask a student to come to the chalkboard and draw a straight line. Say, "Remember to place arrows on the line to show that the line can be extended in either direction."

e.g.,



Ask a student to erase one arrow and place a mark at the new end point. Say, "This is a picture of a ray. A ray is a part of a line that has only one end point. It goes on and on in the direction of the arrow."

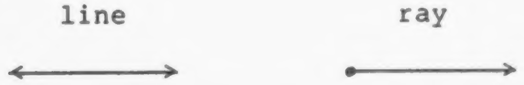
e.g.,



Repeat this procedure varying the directions of rays.

STRATEGY 2: Draw a picture of a ray and a line on the chalkboard, labeling each.

e.g.,



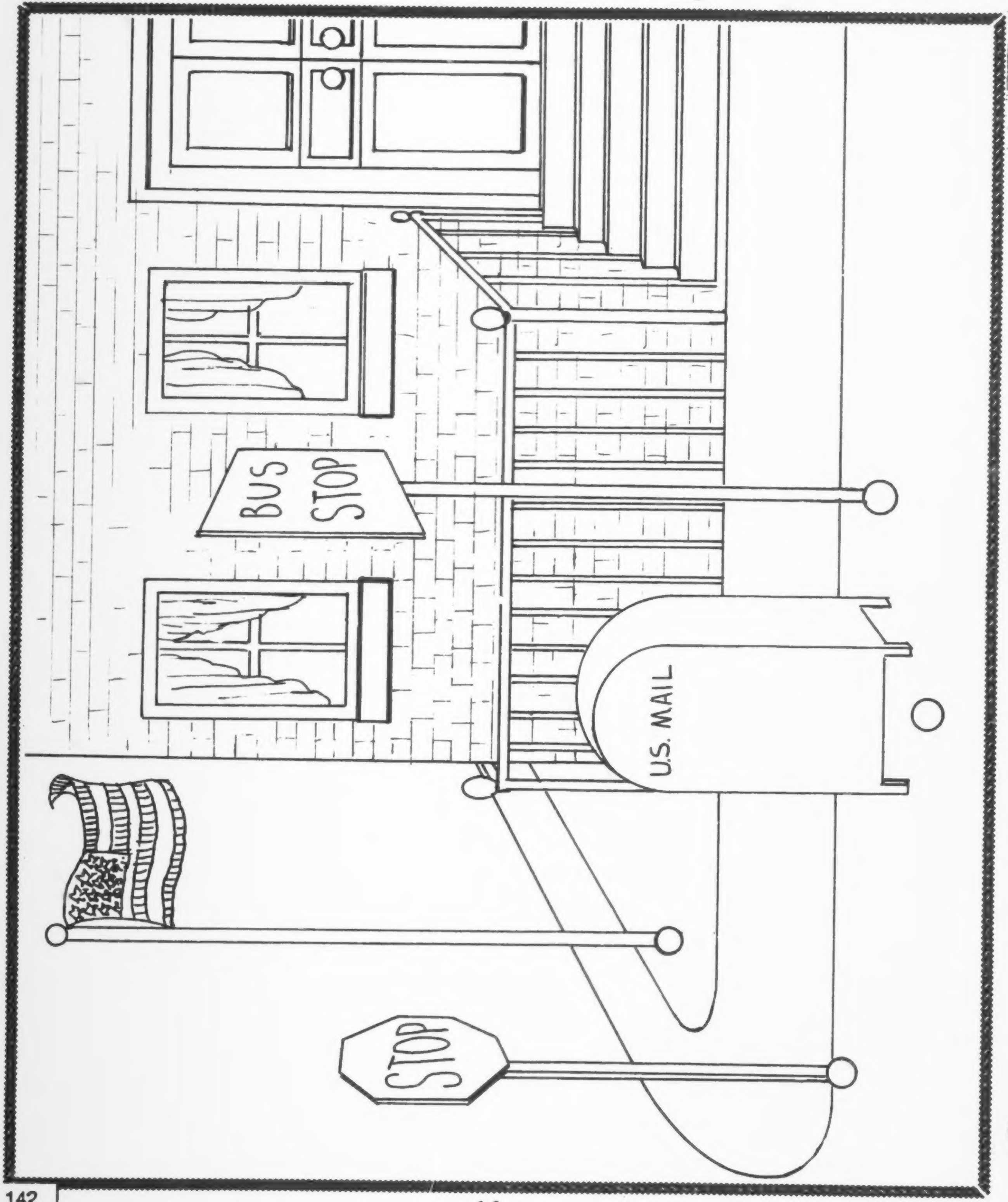
Say, "Look at the drawings on the chalkboard. How is a ray different from a line?" Reinforce that a ray is a part of a line that has only one end point. It goes on and on in the direction of the arrow.

Ask a student to come to the chalkboard to show the end point of the ray. Say, "In which direction is the ray going?" Ask the students to name several objects or items which resemble a ray,
e.g., a flashlight's beam, the sun.
Repeat this procedure by drawing pictures of lines on the chalkboard and asking students to change them to rays.

P.O. 2.09.01.01

NAME: ______________________ CLASS: __________ DATE: ________

Shade the points where you would find the stop sign, the mailbox, the flagpole and where the bus would stop.


BUS STOP
U.S. MAIL
STOP

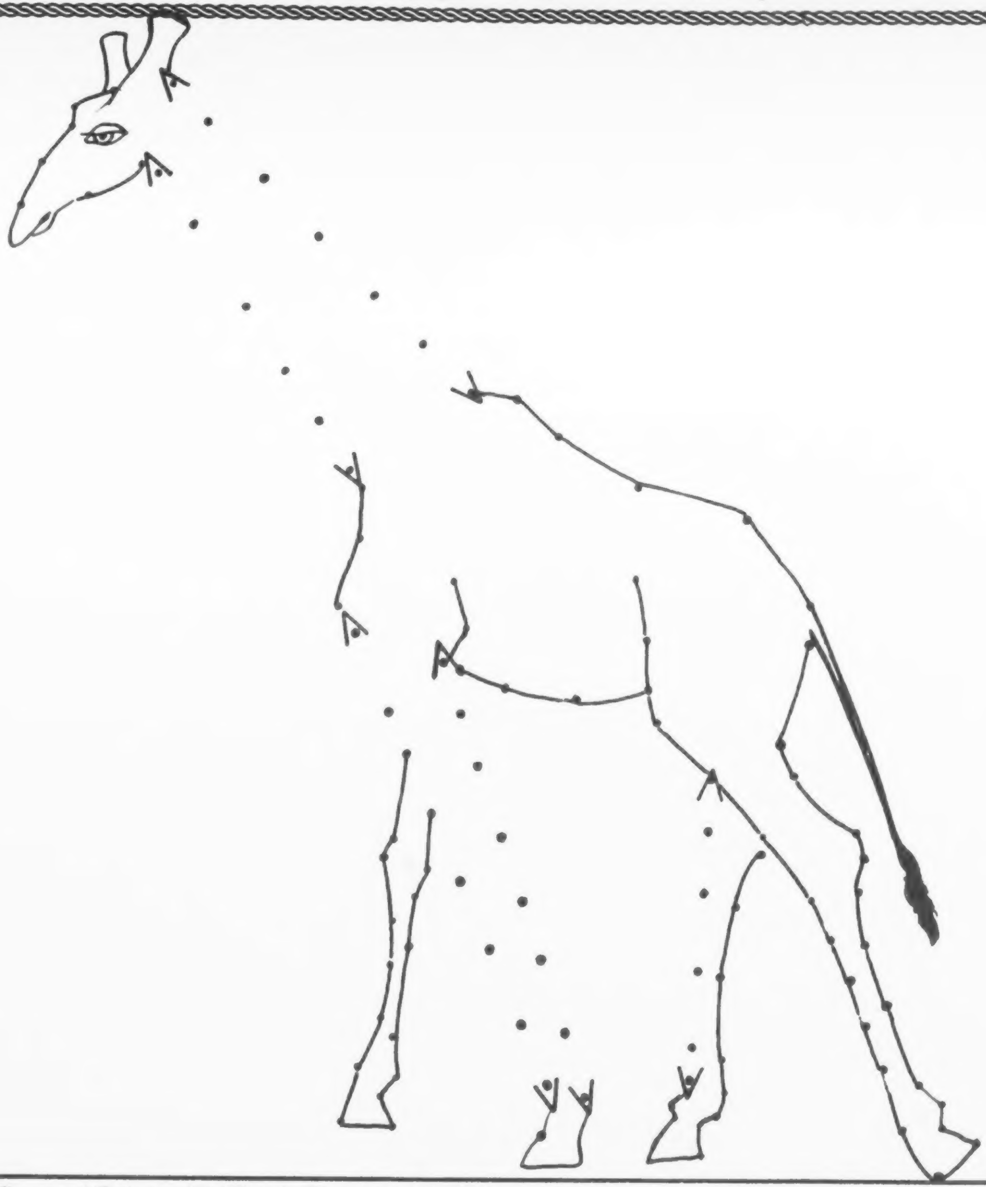
172

171

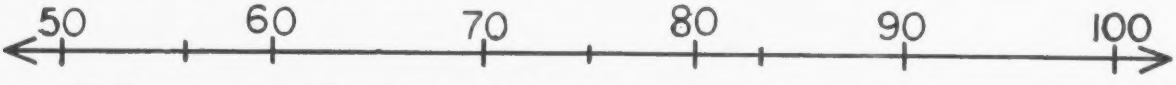
P.O. 2.09.01.02

NAME: ______________________ CLASS: ________ DATE: ________

Connect the points. Can you find the five straight lines?
(Hint: Use the arrows to help you find the lines.)



DO YOU REMEMBER?



56 *rounded to the nearest* 10 *is* ______.

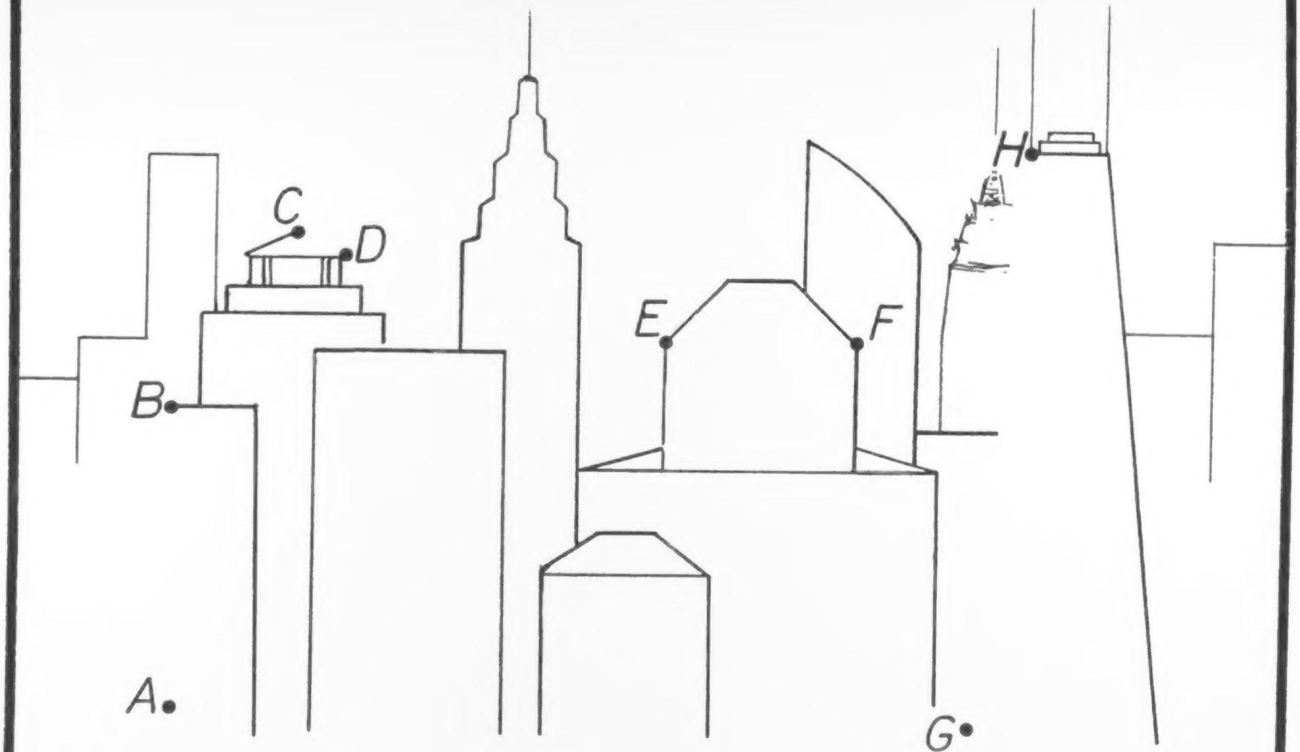
83 *rounded to the nearest* 10 *is* ______.

75 *rounded to the nearest* 10 *is* ______.

P.O. 2.09.01.03

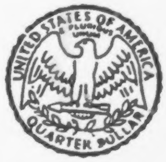
NAME: ______________________ CLASS: ________ DATE: ________

Draw line segments from point A to point B, point C to point D, point E to point F, and point G to point H.



How many line segments did you draw? ______

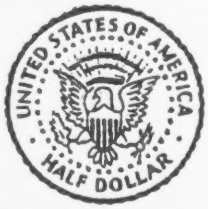
DO YOU REMEMBER?



UNITED STATES OF AMERICA
QUARTER DOLLAR

What is the value? ______

Is it even or odd? ______



UNITED STATES OF AMERICA
HALF DOLLAR

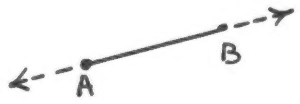
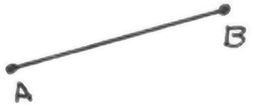
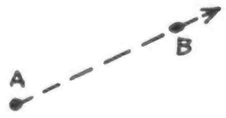
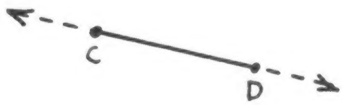
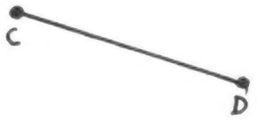
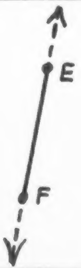
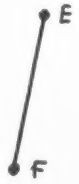
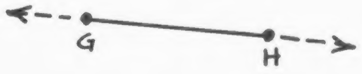
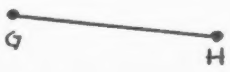
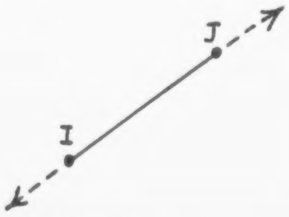
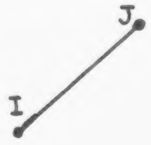
What is the value? ______

Is it even or odd? ______

P.O. 2.09.01.04

NAME:________________________________ CLASS:__________ DATE:________

Draw a ray in each empty box.

line	line segment	ray
1. 		
2. 		
3. 		
4. 		
5. 		

2.11.01 OPEN SENTENCES

(2 lessons)

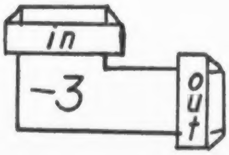
PERFORMANCE OBJECTIVES

The student will be able to...

2.11.01.01A identify and solve an open sentence; e.g.,

□ + 3 = 14   □ - 5 = 10
14 = □ + 3   15 - □ = 10
3 + □ = 14   10 = □ - 5
11 + 3 = □   15 - 10 = □

2.11.01.02B use tables to show number relationships; e.g.,



IN	20	19	18
OUT	17	16	15

2.11.01.03B use place holders to identify patterns of sums and differences.
e.g.,

□	△
0	7
1	6
2	5
3	4

□	△
7	0
8	1
9	2
10	3

2.11.01

VOCABULARY

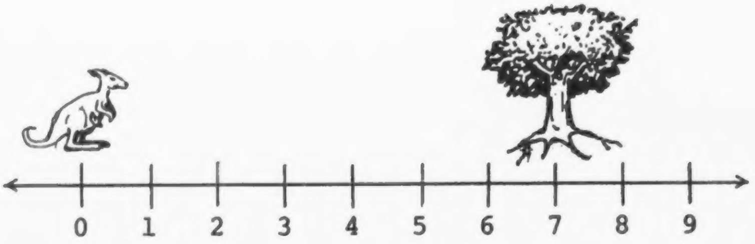
TERMS

place holder
table
open number sentence
rule

GETTING STARTED

Prepare a flannelboard and flannel cutouts to show two sets, e.g., 4 dogs, 3 dogs. Join the sets together to make one set of 7 dogs. Say, "4 + 3 = 7 is a number sentence that shows the joining of four dogs and three dogs." Display other sets on the flannelboard which show addition and ask the students to make up number sentences.

Prepare a paper kangaroo and a paper tree. Draw a number line on the chalkboard with the kangaroo at zero and the tree at 7.
e.g.,



Say, "The kangaroo must jump to the tree in two hops. First he lands on four and then he jumps 3 more. How can these two jumps be written as a number sentence?" (4+3=7)

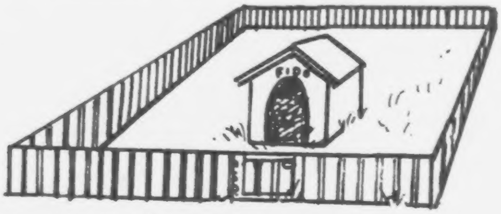
Repeat this procedure with other number combinations. Move the tree to other points on the number line.

2.11.01

2.11.01.01 identify and solve an open sentence

STRATEGY 1: Prepare $1\frac{1}{2}$ egg cartons and colored cubes. Place one cube in each of nine compartments of the egg carton. Say, "There are nine cubes in this egg carton." Write the number 9 on the chalkboard. Say, "How many more cubes are needed to fill the egg carton?" Write $9 + \boxed{} = 12$ on the chalkboard. Ask a student to complete the number sentence. If necessary, add one cube at a time until you reach three. Say, "Is there a different way to answer this question?" Elicit from the students that nine can be subtracted from 12 to get three. Write $12 - 9 = \boxed{}$ on the chalkboard. Repeat this procedure with similar problems.

STRATEGY 2: Draw the following picture on the chalkboard.



Prepare a set of 18 cards with one dog on each card and tape them to the chalkboard inside the fence. Say, "The owner of the kennel has 18 dogs in a fenced in area which includes a doghouse. Each time the owner comes to the yard, he counts his dogs. Sometimes there are dogs inside the doghouse and he cannot count them. Close your eyes as I place some dogs inside the doghouse. (Remove nine cards.) How do we know how many dogs are inside the doghouse? (We know how many dogs there were and how many are left.) Let's write an open number sentence to help us find the answer." Write $18 - \boxed{} = 9$ on the chalkboard. Say, "If we started with 18 and now we have 9 how many dogs are in the doghouse?" (9)

2.11.01

STRATEGY 2: cont'd

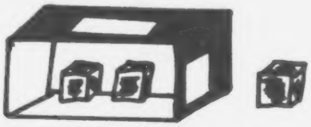
Repeat this procedure using stories which will elicit open number sentences with missing minuends, subtrahends, addends, sums and differences. Ask students to write the open number sentences on the chalkboard and solve.

2.11.01.02 use tables to show number relationships

STRATEGY 1:

Prepare and display small counting blocks and a shoe box with a hole cut in the top and another hole on the side.

e.g.,



Display the following table on the chalkboard.

e.g.,

in	
out	

Ask a student to place three blocks in the box using the slot at the top. Standing behind the box (by the open side) push five blocks through the side slot as the output. Ask a student to write the numeral for what went in and what came out.

e.g.,

in	3	
out	5	

Repeat this procedure and the rule of adding two to the "input" number, e.g., Put in 5 and 7 comes out. Say, "What happened to each number that went into the machine?" (Two were added to the number.) Ask the students to predict what will happen if 8 is the input? (10 will be the output.) Repeat this procedure varying the rule.

e.g.,

-2, +4, -5...

STRATEGY 2: Prepare and distribute chips and student worksheets showing several function machines.
e.g.,

in	4	6	5	7	9
out	10				

Say, "Look at the first input and output. What was added to 4 so that 10 came out?" (6) The students may use the chips to complete each table after discovering the rule. Repeat this procedure with other counting objects and function machines using subtraction.

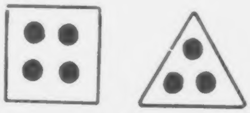
2.11.01.03 **use place holders to identify patterns of sums and differences**

STRATEGY 1: Prepare and distribute chips and a duplicated sheet with a large square and a large triangle drawn on it.
e.g.,

Draw the following on the chalkboard.

□ + △ = 7

Say, "Count out 6 chips. Place some of them on the square and the rest of them on the triangle on your paper."
e.g.,



Ask a student to tell how many counters he/she has in the square and then the number of counters he/she has in the triangle. Say, "4+3 is one way

STRATEGY 1: cont'd

to make 7." Write the following on the chart at the chalkboard.

e.g.,

□	△
4	3

Say, "Who can show 7 in another way?" Record each of the different ways on the chart. Repeat this procedure with different numbers of counters.

Repeat this procedure with subtraction patterns.

e.g.,

$\square - \triangle = 5$

STRATEGY 2:

Display an open sentence on the chalkboard with two place holders that are different in shape.

e.g.,

$\square + \triangle = 9$

Say, "What pairs of numbers will make this open sentence true?" After the students have given more than two responses, say, "We can organize your answers on a table."

e.g.,

□	△
5	4
6	3
7	2

Continue writing open sentences on the chalkboard with the two other place holders filled and the sum empty.

e.g.,

$\boxed{4} + \triangle{1} = \underline{\qquad}$

Say, "What sum will make this sentence true?" (5)

STRATEGY 2:
cont'd

Create a table on the chalkboard with other numbers whose sum is 5.

e.g.

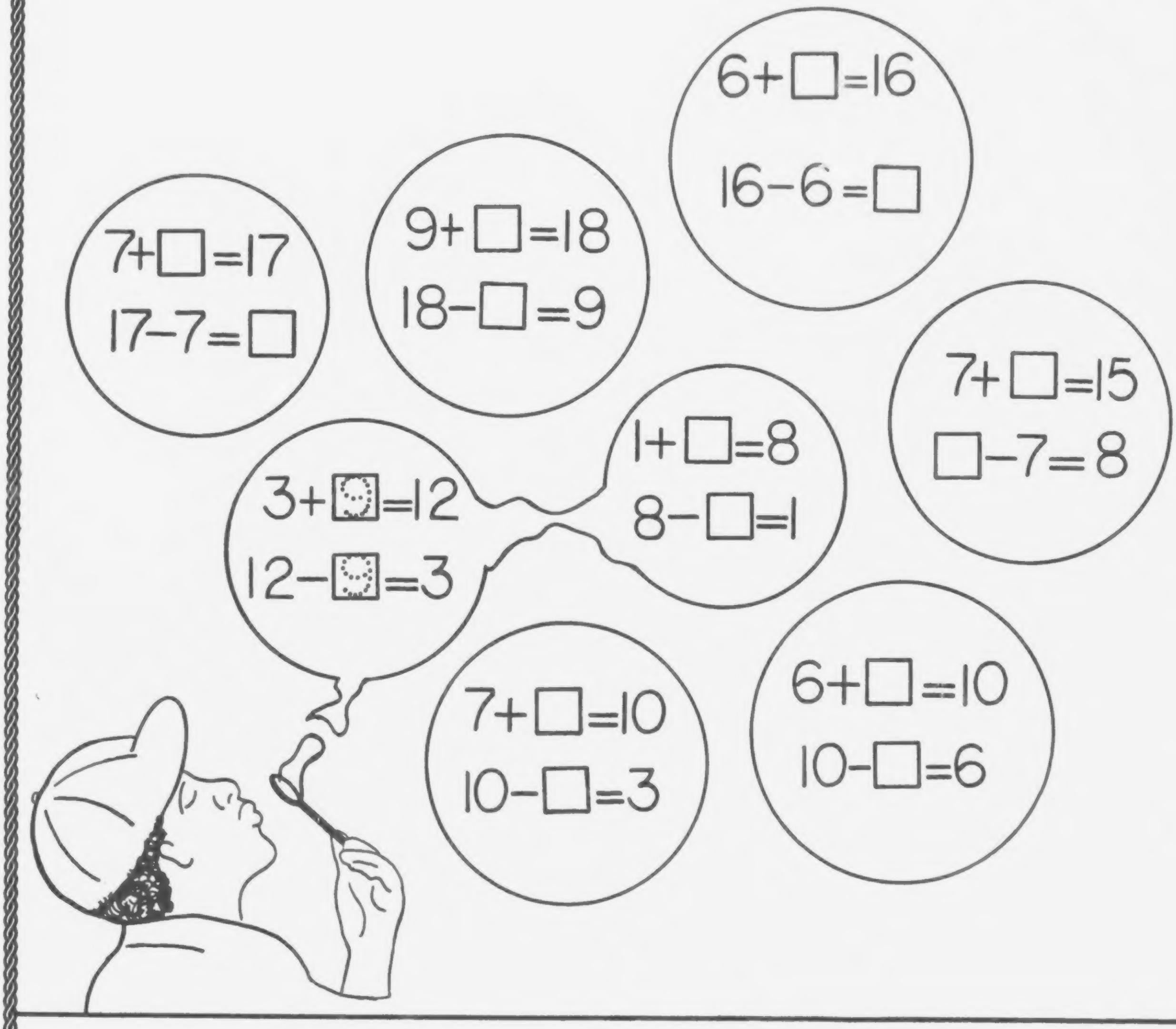
□	△
3	2
5	0
2	3

Repeat this procedure creating open sentences and tables for patterns of differences in subtraction.

P.O. 2.11.01.01

NAME: ______________________ CLASS: ________ DATE: ________

Complete each number sentence by writing the numerals in the boxes.



$6+\square=16$

$16-6=\square$

$7+\square=17$

$17-7=\square$

$9+\square=18$

$18-\square=9$

$7+\square=15$

$\square-7=8$

$1+\square=8$

$8-\square=1$

$3+\boxed{9}=12$

$12-\boxed{9}=3$

$7+\square=10$

$10-\square=3$

$6+\square=10$

$10-\square=6$

DO YOU REMEMBER?

Rochelle saved 18¢ on Saturday.
She saved 9¢ on Sunday.
How much more did she save on Saturday? ____________

P.O. 2.11.01.02

NAME: ____________________ CLASS: __________ DATE: ________

Complete each function machine.

+7	IN	7	8	9	6
	OUT	14			

-8	IN	17	16	14	15
	OUT	9			

+9	IN	2	4	6	7
	OUT	11			

+10	IN	4	7	5	3
	OUT	14			

-2	IN	12	18	16	14
	OUT	10			

P.O. 2.11.01.03

NAME: ______________________ CLASS: __________ DATE: __________

Choose a number for each □ and △ to make a true number sentence.

□ = 1, 2, 3, 4, 5

△ = 8, 9, 10, 11, 12

□ + △ = 13

□	△
1	12

□ = 5, 3, 9, 7, 14

△ = 1, 8, 6, 12, 10

□ + △ = 15

□	△
5	10

□ = 3, 4, 5, 9, 10

△ = 2, 6, 7, 1, 8

□ + △ = 11

□	△
3	8

2.01.07 PLACE VALUE THROUGH 999

(2-3 lessons)

PERFORMANCE OBJECTIVES

The student will be able to...

2.01.07.01A identify the place value of any digit in a numeral less than 1000;

e.g.,

		Hundreds	Tens	Ones
497	=	4	9	7
36	=		3	6

*2.01.07.02A identify the meaning of zero in the place value system;

e.g.,

203 = 200 + 3   23 = 20 + 3

*2.01.07.03A write a given numeral in expanded form;

e.g.,

497 = 4 hundreds + 9 tens + 7 ones

497 = 400 + 90 + 7

2.01.07.04A write a standard numeral when the expanded form is given.

e.g.,

4 hundreds + 9 tens + 7 ones = 497

400 + 90 + 7 = 497

2.01.07

VOCABULARY

TERMS

digit
expanded numeral
standard numeral

GETTING STARTED

Prepare and distribute individual sticks (ones) and bundles of ten sticks to each student or group of students. Say a number from 1 through 99 and ask the students to represent that number using their individual sticks and bundles. Repeat this procedure until sufficient practice has been given.

Variation: After each number has been represented with the individual sticks and bundles, select a student to come up to the chalkboard and write the given numeral in its expanded form.

e.g.,

37 = 30 + 7
37 = 3 tens + 7 ones

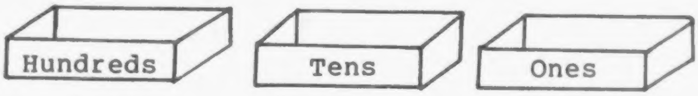
Divide the class into two teams. Say, "Today we will play a game. I will make up problems using numbers through 999." Ask the students to write the numeral that comes one before 587 or to write the numeral that comes one after 199. Say, "The first player from each team to write the correct numeral on the chalkboard scores a point for his/her team." Repeat this procedure until everyone has had a chance to participate.

2.01.07

2.01.07.01 **identify the place value of any digit in a numeral less than 1000**

STRATEGY 1: Prepare and display the following boxes.

e.g.,



Place 10 hundreds squares, 10 tens strips and 10 ones pieces in the appropriate boxes.

Ask a student to say any two- or three-digit number and write it on the chalkboard. Ask another student to take the proper number of hundreds squares from the boxes and display them. He/she asks another student to go to the boxes to take the proper number of tens and display them next to the hundreds. He/she then asks another student to go to the boxes to display the proper number of ones.

Repeat this procedure using different numbers.

Variation: The first student called has the option of going to either the hundreds, tens, or ones box. The second student has a choice of the remaining two boxes.

STRATEGY 2: Label three columns on the chalkboard: hundreds, tens, and ones. Prepare and display three boxes labeled as above. Place nine paper strips of the same color in each box, e.g., hundreds -red, tens - yellow, ones - green.

Write 99 on the chalkboard with each digit under the appropriate column. Ask the students the place value of each digit in that numeral. Say, "If we

STRATEGY 2: cont'd

add 1 to 99 what is our new number? (100) What has happened to 99? (It has changed from a two-digit to a three-digit numeral.) How many digits are in this numeral?" (3)

Write the numeral 100 on the chalkboard. Ask the students for the place value of the zeros. Say, "We have added another place. Since 100 has 3 digits, three places are needed."

Ask a student to select a number of paper strips from each box, e.g., 3 red, 4 yellow and 2 green, and place the strips under the appropriate columns on the chalkboard. Ask another student to write the corresponding numeral (342) on the chalkboard. Say, "Who can read the numeral? What is the value of the 2 (2), the 4 (40) and the 3 (300)? Why?"

Repeat this procedure using other numerals.

2.01.07.02 identify the meaning of zero in the place value system

STRATEGY 1:

Prepare and display two boxes marked "Contents: 100 cookies" and a plastic bag containing three cookies. Label three columns on the chalkboard: hundreds, tens and ones. Say, "Today we are going to talk about something which we all enjoy - cookies. There once was a baker who baked chocolate chip cookies. He packaged these cookies in boxes of one hundred and sent them to Class 2-1." Point to the boxes and elicit from the students the number of boxes (2). Say, "How many cookies are in each box? (100) How many cookies

STRATEGY 1:
cont'd

are there altogether (200)." Ask a student to place the number of hundreds under the appropriate column on the chalkboard.

e.g.,

H	T	O
2		

Say, "Did the baker send us any packages of ten? (No) How do we write this? (0) What does the zero tell us?" (There are no packages of ten.) Put a zero under the tens column. Hold up the plastic bag and say, "The baker also sent us some extra cookies. How many extra cookies did he send us? (3) Where do we place this number on our chart? (in the ones column) How many cookies did he send us altogether?" (203)

Repeat this procedure using other three-digit numbers, e.g., 405, 600, 703.

STRATEGY 2:

Prepare and display a place value chart.

e.g.,

Hundreds	Tens	Ones

Say, "How many students in this class have orange and green hair? (none) Who would like to come to the chalkboard and write "none" as a numeral? (0) Zero means that we are talking about a group with nothing in it." Write the digits for the numeral '50' under the appropriate columns on the place value chart. Elicit that there are five groups of ten and no ones, and that the zero means that there are no groups of one.

STRATEGY 2: cont'd

Repeat this procedure with other two- and three-digit numbers, to reinforce the understanding that zero indicates no groups or objects, e.g., 60, 90, 100, 205, 330.

2.01.07.03 **write a given numeral in expanded form**

STRATEGY 1:

Prepare and display a set of oaktag cards, each with a three-digit numeral. Shuffle the cards. Ask a student to select one card, read the numeral, and write it on the chalkboard. Say, "Today we are going to "stretch out" or expand this number. Let's see what happens when we expand 253. What does the 2 mean? (2 hundreds) What does the 5 mean? (5 tens) What does the 3 mean?" (3 ones) Write 253 = 2 hundreds + 5 tens + 3 ones on the chalkboard. Then ask the students to repeat the expanded form of the numeral.

Ask a different student to select another card and repeat the procedure. Ask the students to write the expanded form on the chalkboard. Continue until all cards have been used.

STRATEGY 2:

Prepare and distribute squared material to represent hundreds, tens and ones to each student or small group of students. Prepare a demonstration set of squared material backed with tape. Write a three-digit numeral on the chalkboard. (234) Say, "Who can read this numeral? Let's take apart the numeral 234 beginning with the 2. What does the 2 tell us?" (2 hundreds)

STRATEGY 2: cont'd

Place appropriate squared material on the chalkboard and write 200 under the squared material.

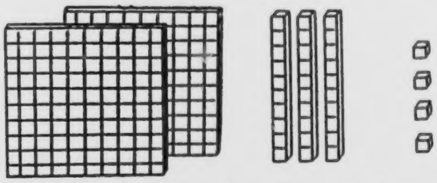
Repeat this procedure for the tens and ones. Ask the students to read the numeral, 234 in its expanded form (200 + 30 + 4).

Repeat this procedure by writing various three-digit numerals on the chalkboard. Students will represent the numerals with their squared material. Select different students to write the expanded forms of the numerals on the chalkboard.

2.01.07.04 **write a standard numeral when the expanded form is given**

STRATEGY 1: Prepare and display squared material backed with tape to represent hundreds, tens and ones. Use the squared material to represent any three-digit numeral on the chalkboard.

e.g.,



Say, "How many hundreds do we have? (2) How many tens do we have? (3) How many ones do we have?" (4) Write 2 hundreds, 3 tens and 4 ones under the appropriate representative material. Select a student to come to the chalkboard and write the corresponding numeral for each expanded form given e.g., 2 hundreds (200), 3 tens (30) and 4 ones (4). Say, "Who can tell us what numeral is the same as 200 +

STRATEGY 1: cont'd

30 + 4?" (234) Reinforce the understanding that each place has only one numeral; therefore, although zeros are written in the expanded form of the numeral they are not necessarily written in the numeral unless they are used as a place holder as in 204 or 350.

Repeat this procedure using other three-digit numerals.

STRATEGY 2:

Prepare and display a box and a set of cards, each with the expanded form of a three-digit numeral. Vary the format of the cards using both the number form (600 + 20 + 7) and the word form (3 hundreds + 6 tens + 8 ones). e.g.,

600 + 20 + 7

6 hundreds + 6 tens + 8 ones

Place the cards in the box. Say, "This is a magical box which contains some very special cards. Each card has a secret number. This number has been "stretched out" or expanded. Our job is to find out that secret number." Ask a student to select a card and read it to the class, e.g., 400 + 50 + 2. Write the number on the chalkboard. Say, "Let's start with the hundreds. Who can tell us what 400 means? How many hundreds are there?" (4) Write the numeral 4 under 400. Continue with the 5 tens and 2 ones. Ask a student to read the secret number (452) and write it on the chalkboard.

Repeat this procedure until all cards have been used.

P.O.2 01 07 01

NAME:______________________________ CLASS:__________ DATE:__________

Fill in the place value charts. Draw a smile on the faces with numerals over 300 and a frown on the other faces.

19

Hundreds	Tens	Ones
	1	9

61

Hundreds	Tens	Ones

380

Hundreds	Tens	Ones

709

Hundreds	Tens	Ones

556

Hundreds	Tens	Ones

256

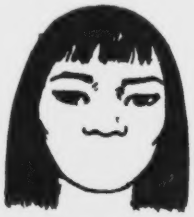
Hundreds	Tens	Ones

147

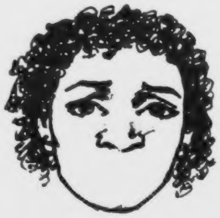
Hundreds	Tens	Ones

438

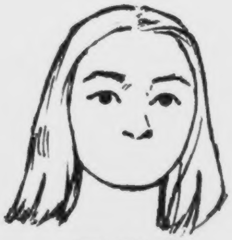
Hundreds	Tens	Ones



709



61



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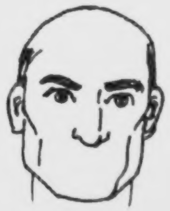
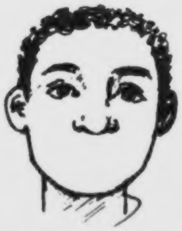
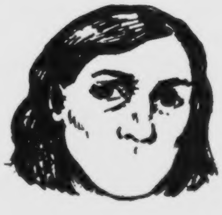


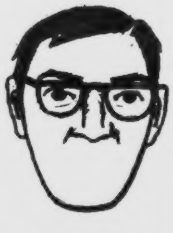
19



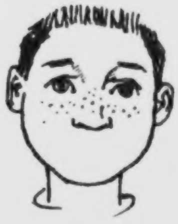
556



256



147

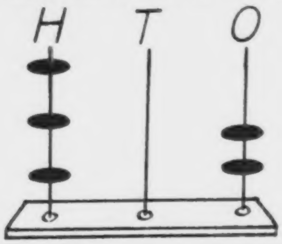


438

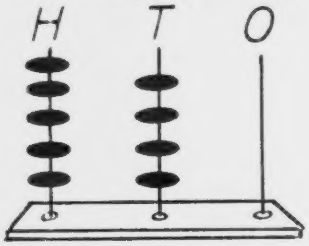
P.O. 2.01.07.02

NAME: ______________________ CLASS: __________ DATE: ________

Write the correct number of hundreds, tens and ones.



3 0 2



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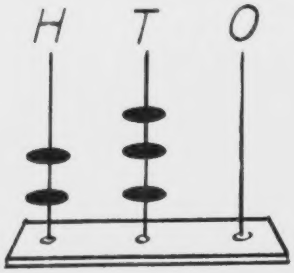

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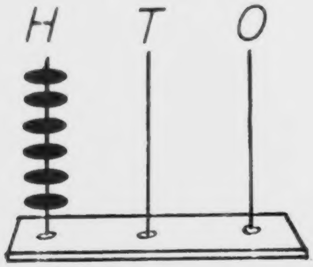
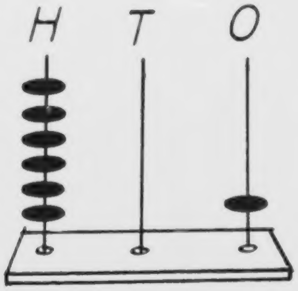
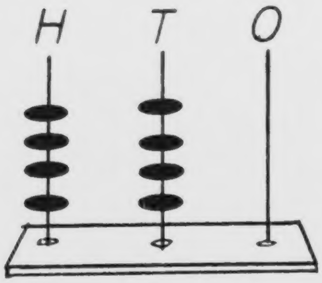


___ ___ ___



___ ___ ___



___ ___ ___

408 = 4 hundreds 0 tens 8 ones

360 = ____ hundreds ____ tens ____ ones

901 = ____ hundreds ____ tens ____ ones

500 = ____ hundreds ____ tens ____ ones

P.O. 2.01.07.03

NAME: ______________________ CLASS: ________ DATE: ________

Write the expanded form for each numeral.

156 = 100 + 50 + 6

674 = ___ + ___ + ___

74 = ___ + ___ + ___

830 = ___ + ___ + ___

700 = ___ + ___ + ___

238 = ___ + ___ + ___

517 = ___ + ___ + ___

309 = ___ + ___ + ___

421 = ___ + ___ + ___

90 = ___ + ___ + ___

257 = 2 hundreds + 5 tens + ___ ones

530 = ___ hundreds + ___ tens + ___ ones

802 = ___ hundreds + ___ tens + ___ ones

195 = ___ hundreds + ___ tens + ___ ones

358 = 3 hundreds + 5 tens + 8 ones

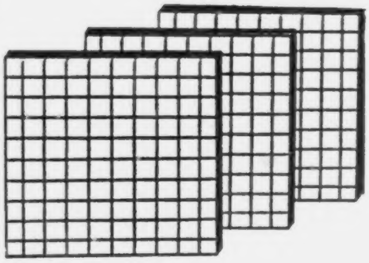
440 = 4 ______ + 4 ____ + 0 ____

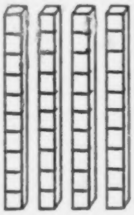
716 = 7 ______ + 1 ____ + 6 ____

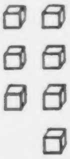
604 = 6 ______ + 0 ____ + 4 ____

P.O. 2.01.07.04

NAME:______________________ CLASS:__________ DATE:________







3 hundreds + 4 tens + 7 ones

300+40+7 = 347

Write the standard numeral.

200+50+6 = 256

500+90+1 = ______

800+30+5 = ______

600+3 = ______

400+60 = ______

700+20+9 = ______

100+10+8 = ______

40+2 = ______

300+70 = ______

900+80+7= ______

Connect the expanded form to the standard form.

5 hundreds + 3 tens + 2 ones

7 hundreds + 8 tens + 9 ones

1 hundreds + 6 tens + 3 ones

3 hundreds + 2 tens + 5 ones

6 hundreds + 1 tens + 3 ones

163

613

532

325

789

2.10.03 MONEY - DOLLARS

(3 lessons)

PERFORMANCE OBJECTIVES

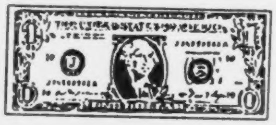
The student will be able to...

*2.10.03.01A identify the value of a dollar bill as 100¢; e.g.,

100 pennies = one dollar

2.10.03.02B show equivalent values of a dollar bill; e.g.,

In value



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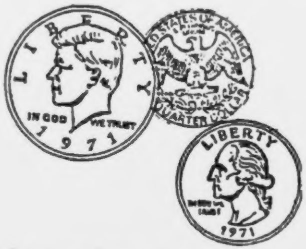
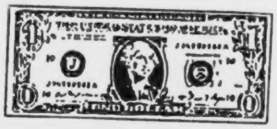


*2.10.03.03A write the decimal point and dollar sign to show one dollar symbolically; e.g.,



= $1.00 in value

2.10.03.04C transpose a given amount from the word form using the dollar sign, decimal point, and numbers. e.g.,

In value one dollar and sixty-five cents = $1.65

2.10.03

VOCABULARY

TERMS	SYMBOLS
dollar	$
decimal point	.

GETTING STARTED

Prepare and place toy money in small plastic bags. Each bag should have different coin combinations. Place these bags in a large box.

Say, "We are going to have a contest. Each pair of students will pick one bag from the box. Count the coins in your bag to see which pair of students has the greatest amount of money. Keep track of your coins with a chart. The winner is the pair with the most money."

e.g.,

Quarters	Dimes	Nickels	Pennies	Amount
1	2	3	2	62¢

Prepare your own classroom sales flier or bring in consumer circulars from local stores. Say, "If you had 50¢, could you buy a can of juice from this store?" Ask similar questions using amounts through 99 cents.

200

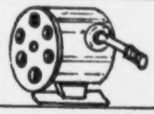
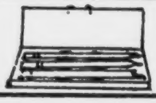
2.10.03

2.10.03.01 identify the value of a dollar bill as 100¢

STRATEGY 1: Prepare play dollar bills. Display a dollar bill and say, "Who can tell us what this is? A dollar bill is worth 100¢. When we want to write one dollar, we can write it as 100¢." Tape the dollar bill on the chalkboard and write one dollar, 100¢.

STRATEGY 2: Prepare and display play money backed with tape (nickel, dime, quarters, dollar bill) and the following chart.
e.g.,

MAXIE'S BIG SALE

ITEM	COST	VALUE
pencil		
eraser		
sharpener 		
pencil case 		

Display the nickel, dime and quarter and ask the students to identify and give the value of each coin. Say, "Today we are going to Maxie's big sale. We will buy the items that are on the chart. The pencil is the least expensive item while the pencil case is the most expensive item. If the pencil is the least expensive item, how much do you

STRATEGY 2: cont'd

think it costs?" (a nickel) Ask a student to place the correct play money next to the pencil under the cost column. Say, "What is the value of a nickel?" (5¢) Ask another student to write 5¢ under the value column. Continue this procedure with the eraser (10¢) and the sharpener (25¢). Say, "The pencil case is the most expensive. How much does it cost?" (one dollar) Display the dollar bill and ask a student to place it on the chart. Say, "If there are five pennies in a nickel, ten pennies in a dime and twenty-five pennies in a quarter, how many pennies do you think there are in one dollar? (100) We write this as 100¢." Ask a student to write the value of the pencil case (100¢) under the appropriate column.

2.10.03.02 show equivalent values of a dollar bill

STRATEGY 1:

Prepare play money representing pennies, nickels, dimes, quarters, half-dollars and dollar bills. Display a dollar bill. Say, "What is this? How many cents equals the value of a dollar bill? (100 pennies) A dollar bill can be exchanged for other coins and still have the same value." Pick up a dime and say, "What is the value of a dime?" (10 cents) Ask a student to count by tens as he/she points to each of ten dimes. Say, "How many dimes were counted to equal 100¢? (Ten) Ten dimes are also worth one dollar." Show a quarter and say, "What is the quarter worth? (25¢) You can count

STRATEGY 1: cont'd

quarters to make one dollar." Display four quarters. Point to the appropriate amount of quarters and say, "25¢, 50¢, 75¢, 100¢ or one dollar." Repeat this procedure for half-dollars.

STRATEGY 2:

Prepare and display play money backed with tape. Say, "Today Class 2-1 is going to the bank. We each have a dollar bill. Show a one dollar bill. We will ask the clerk in the bank to exchange this dollar bill for coins and still have the same amount of money. I'll be the clerk in the bank. If we want to exchange our dollar bill for dimes, how many dimes will we get in exchange for the dollar bill? What is the value of a dime? (10¢) Let's count by tens." As each dime is counted, ask a student to place it on the chalkboard next to the dollar bill. "For how many dimes did we exchange the dollar bill?" (10) Repeat this procedure varying the coins that are equivalent to the dollar bill. Select different students to be the bank clerk and the customer. List each equivalent value on the chalkboard.

2.10.03.03 **write the decimal point and dollar sign to show one dollar symbolically**

STRATEGY 1:

Prepare a dollar bill. Write 58¢ and 99¢ on the chalkboard. Ask the students to read each amount. Say, "This symbol, ¢, stands for cents." Display the dollar bill and write $1.00 on the chalkboard. Say, "This is how we write one dollar. The $ is called a dollar sign. The number 1 tells the number of dollars. The point is called a decimal point and it separates the dollars from the cents. The .00 means zero cents or no cents. Write $1.00 in your notebook and draw a picture of the dollar bill."

2.10.03.04 **transpose a given amount from the word form using the dollar sign, decimal point, and numbers**

STRATEGY 1: Prepare and display various amounts of money on sentence strip paper.

e.g.,

one dollar and seventy-five cents

one dollar and fifteen cents

Tape one strip at a time to the chalkboard. Ask a student to read and write the amount in numbers on the chalkboard. ($1.75) Say, "How many dollars are there? How many cents are there?" Repeat this procedure with the other sentence strips.

STRATEGY 2: Prepare play money representing coins and dollar bills. Distribute a dollar bill and several coins to each student or group of students. Write an amount of money on the chalkboard, e.g., one dollar and fifteen cents. Say, "Show this amount with your money." Ask a student to write the amount on the chalkboard. Say, "Remember to use a dollar sign and a decimal point when you write the amount."

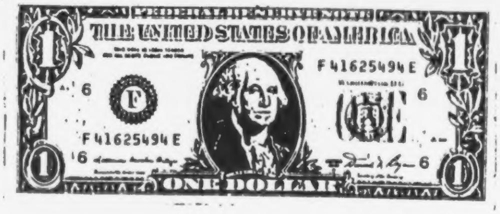
Repeat this procedure with different amounts of money.

P.O. 2.10.03.01

NAME:______________________________ CLASS:________ DATE:_______

Circle the correct answer.

1. What is this?

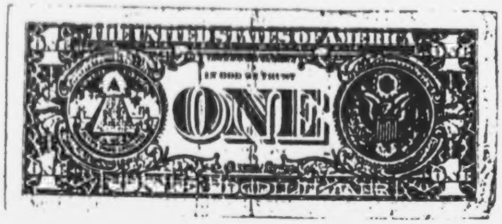


a dollar bill

a quarter

a dime

2. How many pennies are equal to a dollar bill?

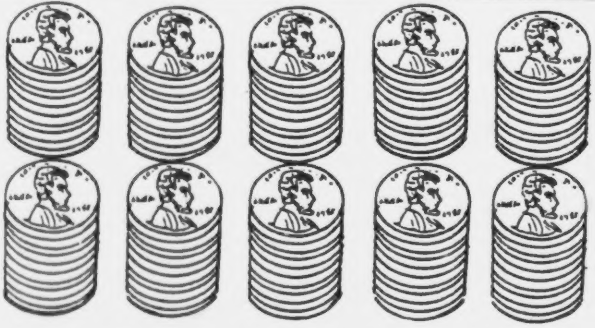


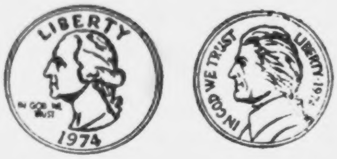
100 pennies

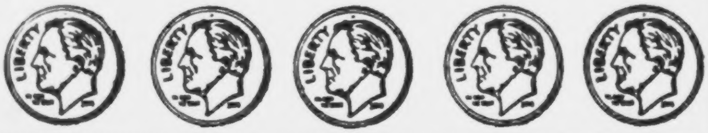
50 pennies

20 pennies

3. Which group equals one dollar?

A. 

B. 

C. 

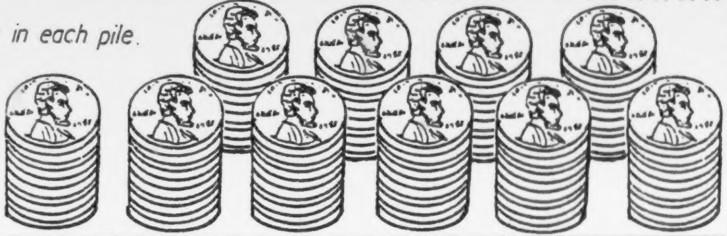
P.O. 2.10.03.02

NAME: ____________ CLASS: ____________ DATE: ____________

Fill in the blanks.

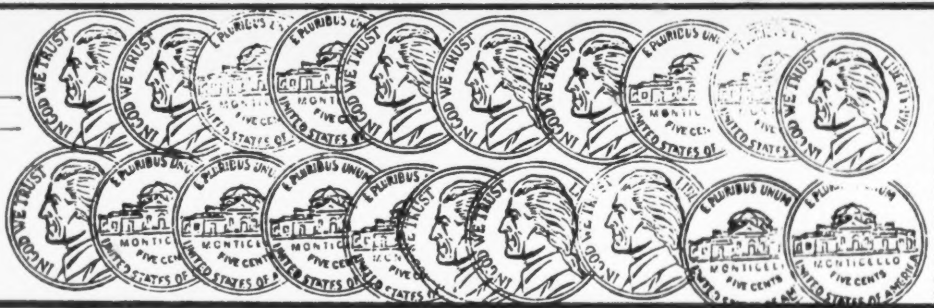
=

Hint: There are 10 pennies in each pile.



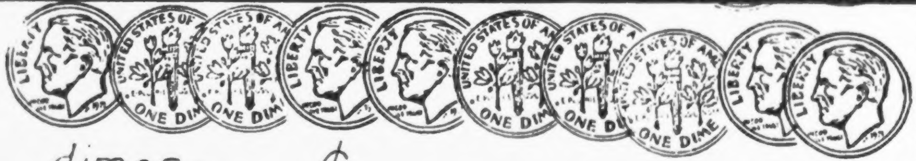
1 dollar = ___ ¢

=



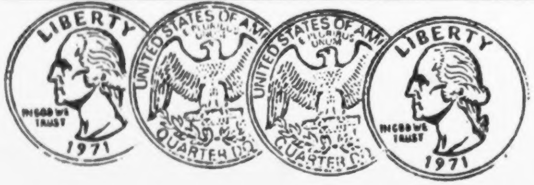
1 dollar = ___ nickles = ___ ¢

=



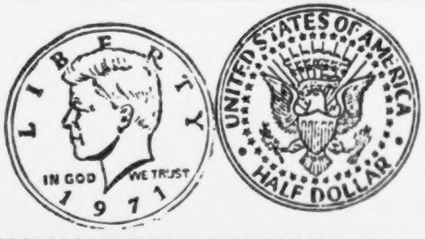
1 dollar = ___ dimes = ___ ¢

=



1 dollar = ___ quarters = ___ ¢

=



1 dollar = ___ half dollars = ___ ¢

P.O. 2.10.03.03

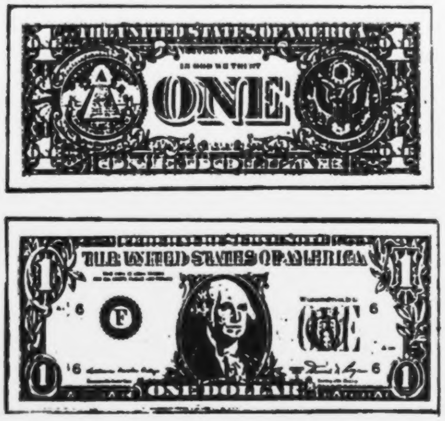
NAME: ______________________ CLASS: __________ DATE: ________

Write the value of each item below using a dollar sign ($) and a decimal point (.).

dollars	dimes	pennies
1	0	0

= $ ________.________

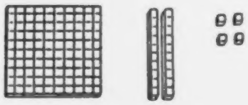
100¢ = ____________



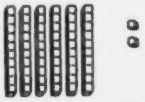
= ____________

DO YOU REMEMBER?

hundreds tens ones numeral



= ________ ______ ______ = ________



= ______ ______ = ________

P.O. 2.10.03.04

NAME: ______________________ CLASS: __________ DATE: ________

Follow the directions in each part.

A. Match each word value to its number value.

One dollar and sixty-five cents	$1.15
One dollar and fifteen cents	$1.16
One dollar and thirty-two cents	$1.65
One dollar and sixteen cents	$1.32
One dollar and fifty-two cents	$1.52

B. Write the number value for each word value.

One dollar and sixty-three cents	$1.63
One dollar and thirty-nine cents	________
One dollar and fifty cents	________
One dollar and twenty-five cents	________
One dollar and ten cents	________

2.01.08 ORDINAL NUMBERS ELEVENTH THROUGH THIRTY-FIRST

(1 lesson)

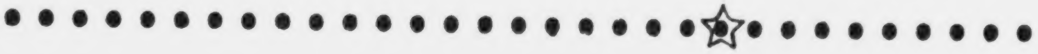
PERFORMANCE OBJECTIVES

The student will be able to...

2.01.08.01B identify the ordinal position of each object in a row through 20 objects;
e.g.,

15th from the left

2.01.08.02B identify the ordinal position of each object in a row through 31 objects.
e.g.,



22nd from the left

2.01.08

VOCABULARY

TERMS

tenth
eleventh
twelfth
thirteenth
fourteenth
fifteenth
sixteenth
seventeenth
eighteenth
nineteenth
twentieth
twenty-first
twenty-second
twenty-third
twenty-fourth
twenty-fifth
twenty-sixth
twenty-seventh
twenty-eighth
twenty-ninth
thirtieth
thirty-first

GETTING STARTED

Using experience chart paper, write the ordinal numbers "first" through "ninth." Ask the students to say each number. Ask nine students to come to the front of the classroom and stand in a line. Say, "Who is the first, second... in the line?" Ask where a specific student is standing in the row, e.g., "Is John first in the line? Who is sixth in the line?"

Prepare and display nine circles of different colors, e.g., red, brown, green, yellow... Ask students to place these circles in a row as you say, "Place the yellow circle first, the red circle second..." When the row is complete, ask for the locations of each color, e.g., "Where is the blue circle?"

Ask the students to change the positions of the circles, e.g., place the red circle first, the green circle second... When the row is complete, formulate questions as above.

2.01.08

2.01.08.01 **identify the ordinal position of each object in a row through 20 objects**

STRATEGY 1: Ask twenty students to stand in a row at the front of the room facing the window. Say, "Joey is first in this row of students. Who is fifth?" Ask one of the seated students to go to the front of the room and tap the fifth student on the shoulder. If he/she is correct, he/she may take that student's place in the line. Continue until each student has had a chance to participate. Finally, ask the students to say their position as they return to their seats in order.

Variation: Say, "In what place is John standing?" (He is thirteenth.) The student who names the position correctly may take John's place in the line.

STRATEGY 2: Draw twenty circles on the chalkboard. Say, "Who can put an x inside the tenth circle from the left?" Before the student places an x inside the correct circle, he/she will count first, second, ... until he/she finds the tenth circle from the left end.

Repeat this procedure for ten more circles, e.g., fifth circle, eleventh circle. Say, "Can you name the circles in which there are no x's?"

2.01.08

2.01.08.02 **identify the ordinal position of each object in a row through 31 objects**

STRATEGY 1: Prepare and display 31 index cards with cardinal numbers 1 through 31 written on the back. Tape them on the chalkboard, in order, keeping the numbers hidden. Point to the card at the far left and say, "This is the first card." Turn it over so the students can see the number 1.

e.g.,

Ask a student to find the seventeenth card counting by ordinals to seventeenth. Turn that card over so the number 17 is visible. Repeat this procedure until all the cards have been turned over. Ask the class to count from first through thirty-first as you remove the cards.

STRATEGY 2: Prepare a blank calendar for a month that has 31 days. Ask individual students to fill in the numbers for each day, first through thirty-first. As they fill in the number, ask each student to say the ordinal number. After the calendar has been completed, say, "Which day is the third Tuesday? ...the first Friday?...the last Monday?..."

P.O. 2.01.08.01

NAME: ______________ CLASS: ______ DATE: ______

Read each sentence below. Write the word which best completes each sentence.

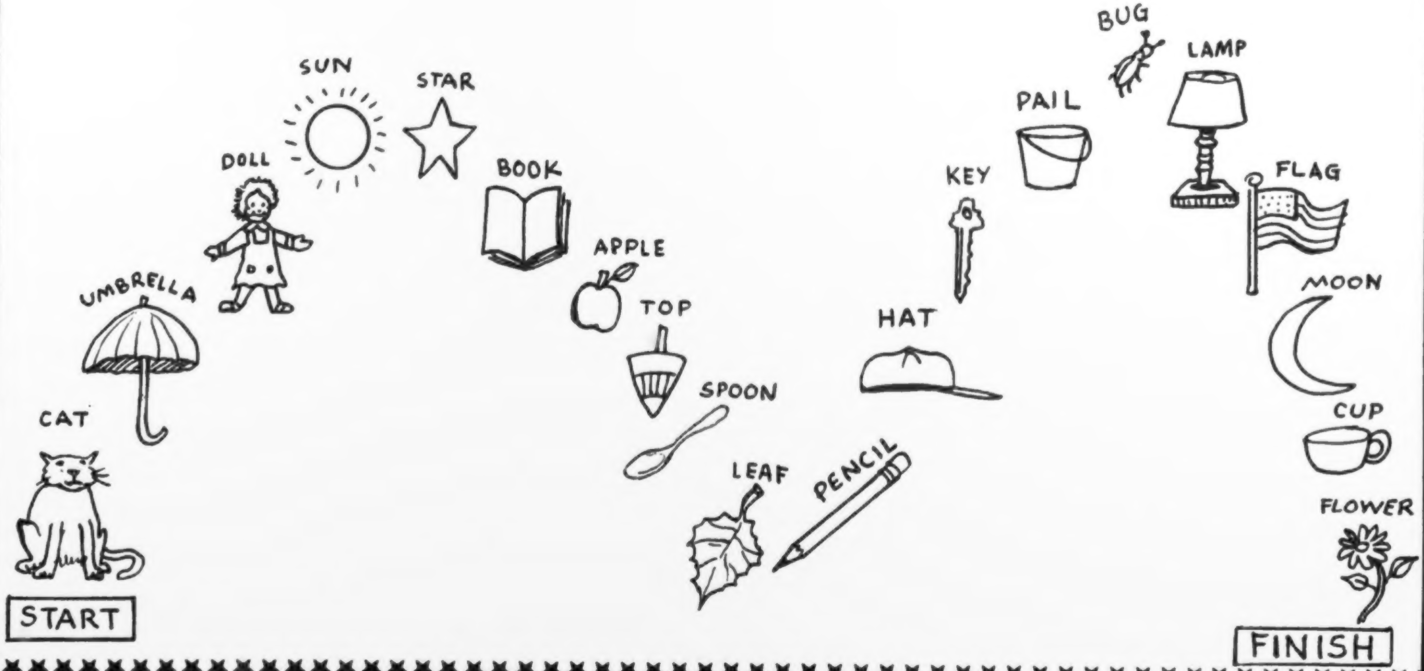
Draw a circle around the third object. It is a ______.

Draw a line over the tenth object. It is a ______.

Place an X on the eleventh object. It is a ______.

Draw a line under the fourteenth object. It is a ______.

Draw a square around the nineteenth object. It is a ______.


START
CAT
UMBRELLA
DOLL
SUN
STAR
BOOK
APPLE
TOP
SPOON
LEAF
PENCIL
HAT
KEY
PAIL
BUG
LAMP
FLAG
MOON
CUP
FLOWER
FINISH

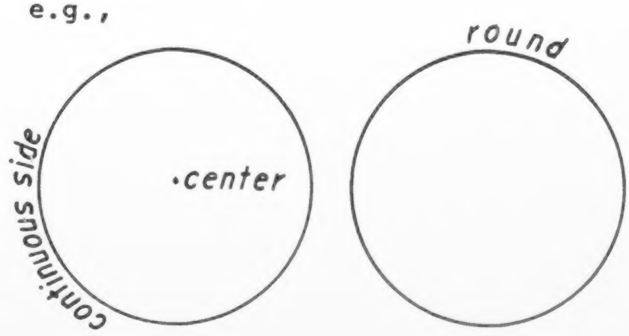
2.09.02 EXPLORE PROPERTIES OF A CIRCLE, SQUARE, RECTANGLE, AND TRIANGLE

(1 lesson)

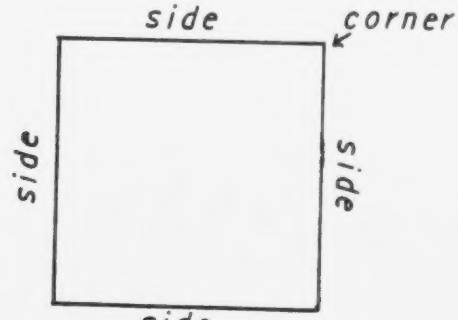
PERFORMANCE OBJECTIVES

The student will be able to...

*2.09.02.01A recognize and list some properties of a circle (round, continuous side, no corners, a center);
e.g.,

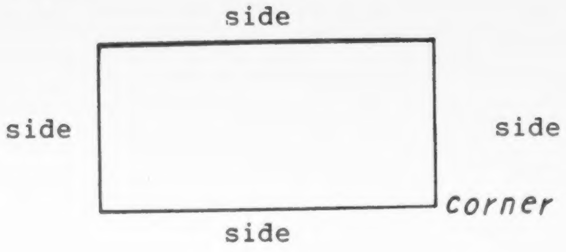

continuous side
center
round

2.09.02.02B recognize and list some properties of a square (four equal sides, four square corners);
e.g.,

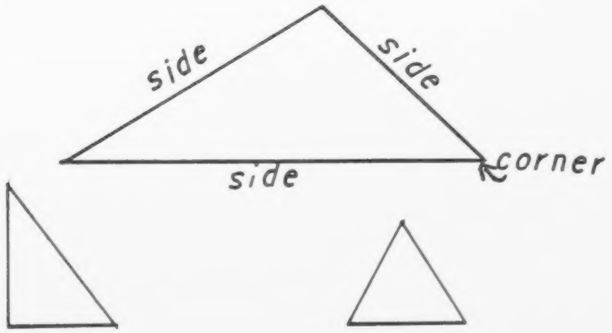

side
corner
side
side
side

216

2.09.02.03B recognize and list some properties of a rectangle (four sides, four square corners); e.g.,


side
side
side
corner
side

2.09.02.04B recognize and list some properties of a triangle (three sides, three corners). e.g.,


side
side
side
corner

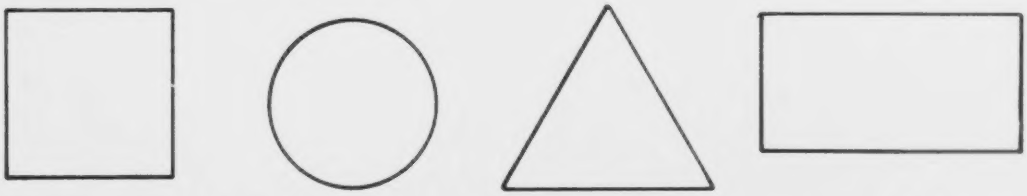
2.09.02

VOCABULARY

TERMS	**SYMBOLS**
rectangle	▭
square	□
triangle	△
circle	○
equal	

GETTING STARTED

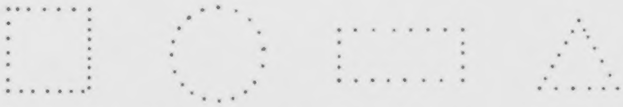
Prepare four oaktag cards, each having the shape of a square, circle, triangle or rectangle.



Prepare a rexographed sheet. Hold up each oaktag card and ask the students to identify each shape. After the shapes have been identified, distribute the rexographed sheet to each student. Assign each shape a color, e.g., red - square, yellow -triangle, blue - rectangle, green -circle. Ask the students to complete the figure by coloring each shape the assigned color.

Draw dot pictures on the chalkboard.

e.g.,



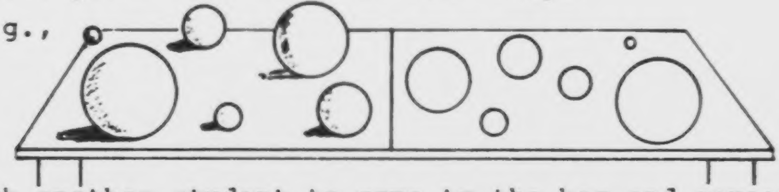
Select students to connect the dots. After the dots have been connected ask the students to identify each shape. Say, "Name real objects (or locate objects in a magazine) that have the same shapes as the pictures we just drew."

2.09.02

2.09.02.01 **recognize and list some properties of a circle (round, continuous side, no corners, a center)**

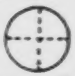
STRATEGY 1: Prepare construction paper, assorted container lids, and scissors. In a large paper bag, prepare a half-dozen circles of different sizes and a half-dozen sphere shaped objects, e.g., beads, balls, marbles. Use tape to divide a desk in half. Ask a student to reach into the bag for one object and place it on one side of the table. If a sphere (marble) was selected, ask a student to describe its attributes. (round, no corners, thick, heavy) If a circle was selected ask a student to describe its attributes. (round, continuous side, no corners, a center) Say, "When you select an object from the bag place it on the side of the table with the objects that have the same shape."

e.g.,



Ask another student to come to the bag and repeat the procedure. After several students have made selections, elicit responses as to why the pieces are being sorted on either side. Repeat this procedure until all the pieces are placed.

Ask the students to describe the ways in which all the circles are alike. (plane, no corners, has a center, and a continuous side)

Demonstrate how the center of a circle is determined by making two folds, e.g., .

Distribute construction paper, container lids and scissors. Ask the students to make a circle and find its center.

2.09.02

STRATEGY 2: Prepare a string, chalk, discs and a blindfold. Draw a circle using the string (radius) and chalk. Blindfold a student and ask him/her to come to the chalkboard and place a disc inside the circle.

Repeat this procedure with several students and mark their points with their initials.

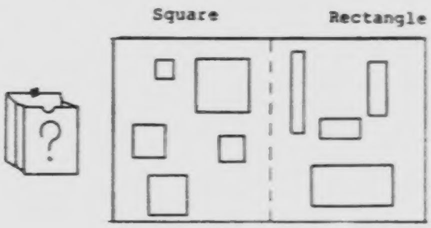
Say, "Who placed his/her disc inside the circle? Who was nearest the center? Who placed his/her disc on the circle?" Use the string to demonstrate how the center is the point inside the circle that is the same distance from all points on the circle.

Repeat this procedure in the schoolyard using a large rope (radius) to make a circle.

2.09.02.02 **recognize and list some properties of a square (four equal sides, four square corners)**

STRATEGY 1: Prepare tape, six oaktag rectangles of different sizes and six oaktag squares of different sizes and place them in a large paper bag. Draw a vertical line on the chalkboard. Place a square on the left side of the line and a rectangle on the right side. Point to each shape and ask students to identify them. (square or rectangle) Write "square" and "rectangle" on the appropriate sides. Ask a student to come to the chalkboard. Say, "Reach into the bag. If you pick a square, tape it on the left side of the line. If you pick a rectangle tape it on the right side of the line." (demonstrate)

e.g.,



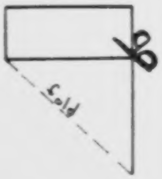
STRATEGY 1: cont'd

Repeat this procedure until all pieces are placed. Say, "How are the shapes on the left side all the same?

Elicit responses from the students concerning properties of a square, e.g., the four sides of a square are equal in length, there are four corners in a square.

Note: Students may make squares from a rectangular sheet of paper. Demonstrate by folding the short side up and then cutting.

e.g.,



STRATEGY 2: Prepare four straws equal in length for each student or pair of students. Point to a square object in the classroom and ask the students to identify the shape and to draw it on the chalkboard.

Distribute four straws to each student or pair of students and ask them to construct a square. Say, "How many straws did you use to make the square?" (4) "How many sides are there?" (4) "How many straws were used for each side?" (1) Reinforce the understanding that all of the sides are equal because the length of each straw is the same.

Point to the four corners of the square on the chalkboard. Ask the students to point to the corners on their square. Say, "How many corners are there?" Ask the students to identify square-shaped objects in the classroom and to use a piece of string to measure the sides of each object to determine if it is square.

2.09.02

2.09.02.03 **recognize and list some properties of a rectangle (four sides, four square corners)**

STRATEGY 1: Prepare four pieces of string (two pieces twelve inches long and two pieces six inches long), tape and toothpicks. Draw a rectangle twelve inches wide and six inches long on the chalkboard. Ask the students to identify the shape. Hold up the four pieces of string and say, "How many pieces of string do I have? (4) What can you tell us about the lengths of these pieces of string?" (Two pieces are long and two are short.) Ask a student to tape the string over the rectangle that is drawn on the chalkboard. Say, "Why did we use four pieces of string? (There are four sides.) Are all of the sides the same size?" (no) Elicit that the shape has two long sides and two short sides and is therefore a rectangle. Repeat this procedure with rectangles of various sizes. Distribute several toothpicks to each student and ask them to construct rectangles.

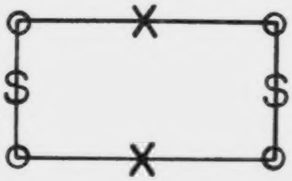
e.g.,

STRATEGY 2: Prepare and display pictures of rectangular objects. Say, "What is the shape of these objects?" (Each is a rectangle.) Draw a rectangle on the chalkboard. Say, "How many lines were drawn to form this rectangle? (4) How many sides are there? (4) Are all of the sides the same size?" (no) Elicit that two sides are long and two are short. Point to one corner of the rectangle and ask a student to point to the other corners. Say, "How many corners does a rectangle have? (4) Now draw a rectangle. Mark the long sides of the

STRATEGY 2: cont'd

rectangle with an X, the short sides with an S and the corners with a circle."

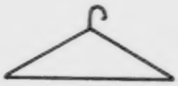
e.g.,

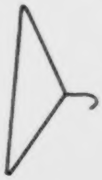


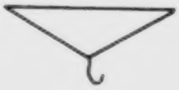
2.09.02.04 **recognize and list some properties of a triangle (three sides, three corners)**

STRATEGY 1: Prepare a coat hanger and masking tape. Display the coat hanger and ask the students to identify its shape. Say, "How many sides does a triangle have?" (3) Ask a student to trace each side with his/her finger. Point to a corner on the triangle. Say, "How many corners does a triangle have?" (3) Change the position of the hanger.

e.g.,



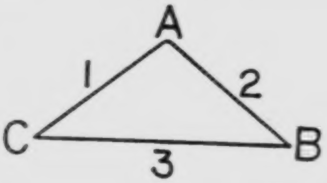




Say, "What is the shape of the hanger now?" Elicit that a triangle can be turned in any direction and it is still a triangle because it has three sides and three corners. Ask several students to construct triangles on the chalkboard using the masking tape. Ask them to label the sides of each triangle.

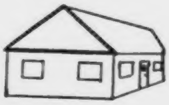
Note: We label each corner with a letter of the alphabet. Each side is labeled with a number.

e.g.,



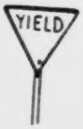
STRATEGY 2: Prepare crayons and drawing paper. Draw a large picture of a house on the chalkboard.

e.g.,



Ask a student to find the triangle in the picture and circle it. Say, "How many sides does a triangle have?" Trace over the three sides with your finger. Point to the three corners of the triangle. Now draw a yield sign on the chalkboard.

e.g.,



Ask the students to identify the shape of the traffic sign. Ask a student to find the sides and the corners of the triangle. Compare the shape of the two triangles on the chalkboard. Elicit that both are triangles because they have three sides and three corners.

P.O. 2.09.02.01

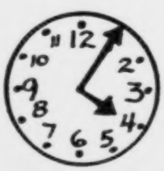
NAME: ______________________ CLASS: __________ DATE: ________

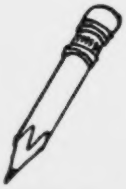
Follow the directions in each section.

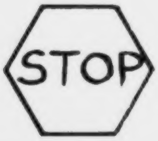
Connect the dots to make a shape and write its name.

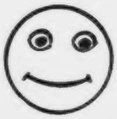
circle

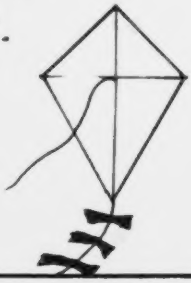
Put an X on each object that has the shape of a circle.

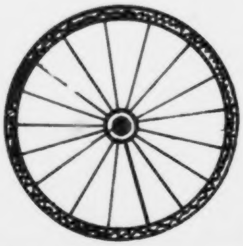




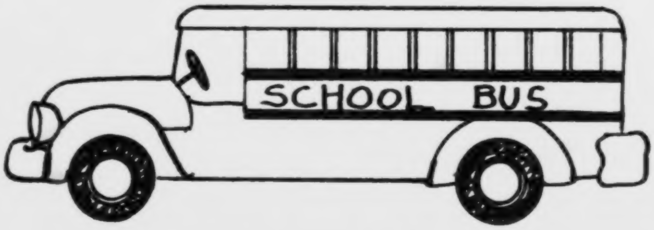








Look at the bus. Put an X on the word which names the shape of its wheels.



circle square triangle rectangle

DO YOU REMEMBER?

$7+\square=16$

$\square-8=4$

$3+6=\square$

$9-\square=4$

$5+6=\square$

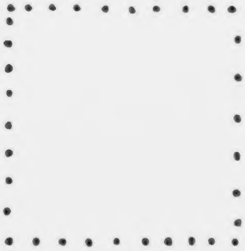
$\square-9=6$

P.O. 2.09.02.02

NAME: ______________________ CLASS: ________ DATE: ________

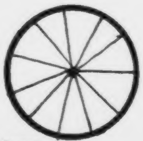
Follow the directions given in each part.

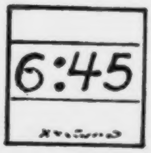
Connect the dots to make a shape and write its name.

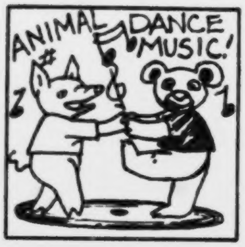


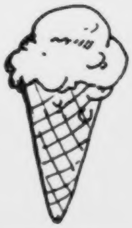
square

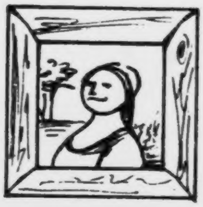
Color the objects that have the shape of a square.



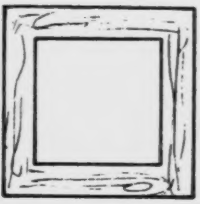








Look at the picture frame. Place an X before the words that tell about the frame.



_____ two long sides, two short sides

_____ three sides, one long, two short

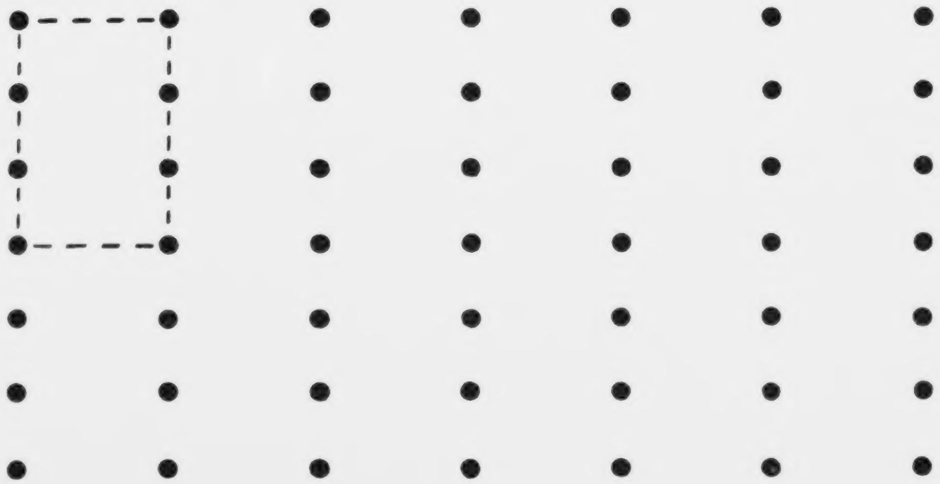
_____ four equal sides

P.O. 2.09.02.03

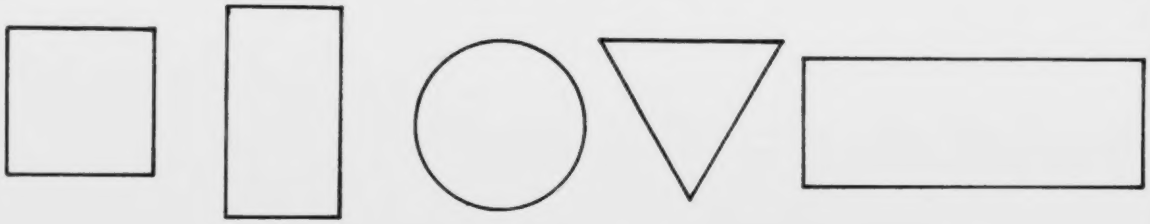
NAME:______________________ **CLASS:**__________ **DATE:**________

Follow the directions given in each part.

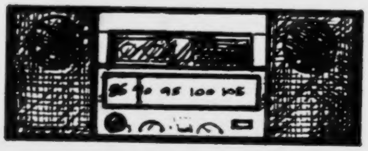
Connect the dots to make two more rectangles, each a different size.



Color the rectangles green.



Look at the radio. Its shape is a rectangle.



It has ______ sides.

It has ______ corners.

It has ______ long sides.

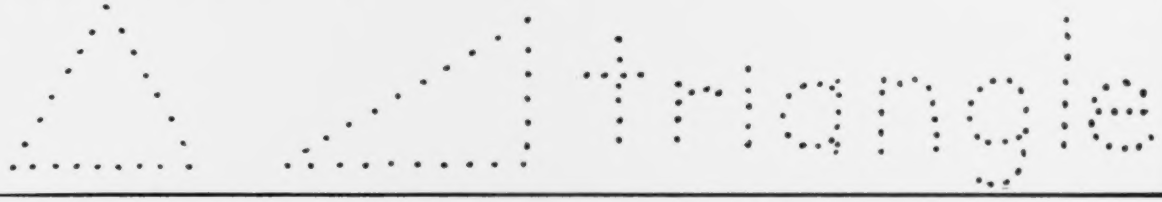
It has ______ short sides.

P.O. 2.09.02.04

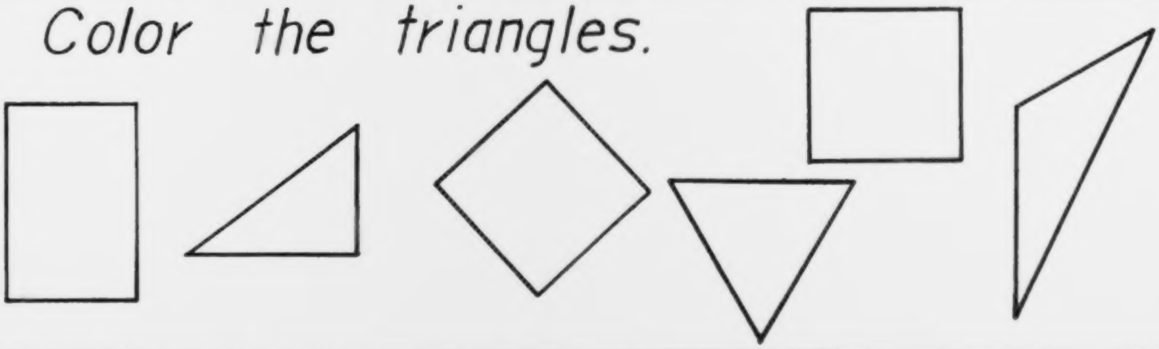
NAME: ______________________ **CLASS:** __________ **DATE:** ________

Follow the directions given in each part.

Connect the dots to make a shape and write its name.

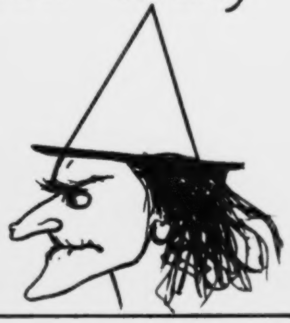


Color the triangles.



Look at the witch's hat. Place an X on the number which tells how many corners it has.

1 2 3 4



DO YOU REMEMBER?

Complete the table to show the temperatures for the next five school days.

Table of Temperatures

School Day					
Temperature					

2.02.01 ADDITION OF 2- AND 3-DIGIT NUMBERS WITHOUT REGROUPING (EXCHANGE)

(2 lessons)

PERFORMANCE OBJECTIVES

The student will be able to...

2.02.01.01A add three or more 2-digit numbers without regrouping (exchange) and check; e.g.,

$$\begin{array}{rcr} & \qquad & \underline{\text{check}} \\ 13 & & 52 \\ 21 & & 21 \\ +52 & & +13 \\ \hline 86 & & 86 \end{array}$$

2.02.01.02B add a 3-digit number and a 2-digit number without regrouping (exchange) and check; e.g.,

$$\begin{array}{rcr} & \qquad & \underline{\text{check}} \\ 124 & & 31 \\ +\ 31 & & +124 \\ \hline 155 & & 155 \end{array}$$

2.02.01.03B add money with one addend through $9.99 without regrouping (exchange) and check; e.g.,

$$\begin{array}{rcr} & \qquad & \underline{\text{check}} \\ \$1.24 & & \$\ .31 \\ +\ \ .31 & & +\ 1.24 \\ \hline \$1.55 & & \$1.55 \end{array}$$

2.02.01.04B solve story problems related to skills learned in this module.

e.g.,

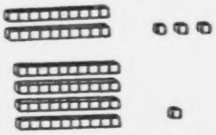
Mr. Smith drove 262 miles one day and 17 miles another day. How many miles did he drive altogether?

$$\begin{array}{r} 262 \\ +\ 17 \\ \hline 279 \end{array} \text{ miles} \qquad \overset{\underline{\text{check}}}{\begin{array}{r} 17 \\ +262 \\ \hline 279 \end{array}} \text{ miles}$$

GETTING STARTED

Prepare eighteen tens strips and eighteen ones squares. Write 23 on the chalkboard. Display 2 tens and 3 ones. Write 41 beneath the 23 and display 4 tens and 1 one.

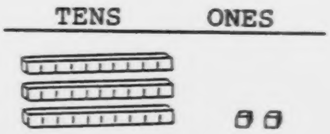
e.g., $\begin{array}{r}23\\ \underline{+41}\end{array}$



Say, "If I want to add these two groups, what symbol shall I use to show addition?" (+) Place the + sign to the left of the squared material and to the left of the numbers. Ask a student to add the ones column. Ask another student to add the tens column. Ask a student to read the example $\begin{array}{r}23\\+41\\\hline 64\end{array}$. Repeat this procedure with other addition examples without regrouping.

Draw and label two columns on the chalkboard. Display 3 tens and 2 ones. Ask a student to count the number of tens and record the number in the tens column. Ask another student to count the number of ones and record the number in the ones column.

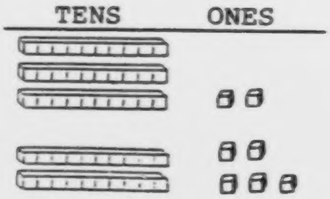
e.g.,



TENS	ONES
3	2

Add 2 tens and 5 ones.

e.g.,



TENS	ONES
3	2
2	5

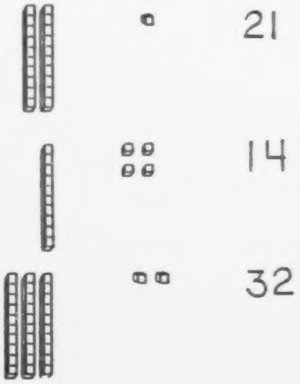
Say, "If I combine the 2 ones and 5 ones, how many ones are there in all?" Ask a student to record the answer on the chalkboard. Repeat this procedure with the tens. Repeat with other addition examples without regrouping.

2.02.01

2.02.01.01 add three or more 2-digit numbers without regrouping (exchange) and check

STRATEGY 1: Prepare squared material (9 tens and 9 ones) and 12 sheets of 8 $\frac{1}{2}$" x 5" paper. Display 2 tens and 1 one. Say, "How many tens and how many ones are displayed? What number does this represent?" Write 21 on one of the papers and tape it to the chalkboard to the right of the squared material. Display 1 ten and 4 ones beneath the first set. Say, "How many tens and ones did I just display? What number does this represent?" Write 14 on another piece of paper and tape it beneath the first sheet. Repeat this procedure with 3 tens and 2 ones.

e.g.,



Say, "How many ones are displayed in all? (7) How many tens? (6) What symbol tells you to add?" Write a plus symbol to the left of the bottom paper and ask a student to do the addition on the chalkboard.

Then switch the positions of each group of tens and ones along with their corresponding papers. Say, "Did I take anything away? (no) Did I add anything? (no) I just switched places. How many tens and ones are there now?" (the same amount) Ask a student to add the addends and record the sum on

STRATEGY 1: cont'd

the chalkboard. Switch the squared material and numerals once again to demonstrate how to check addition.

e.g.,

$$\begin{array}{r} 21 \\ 14 \\ \underline{+32} \\ 67 \end{array} \qquad \begin{array}{r} 14 \\ 21 \\ \underline{+32} \\ 67 \end{array} \qquad \begin{array}{r} 32 \\ 14 \\ \underline{+21} \\ 67 \end{array} \ \ldots$$

Say, "We can check addition by changing the order of the addends and adding again."

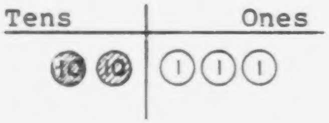
Note: Multiple subtraction may also be used as a check after the necessary subtraction skills have been taught.

e.g.,

$$\begin{array}{r} 21 \\ 14 \\ \underline{+32} \\ 67 \end{array} \qquad \begin{array}{r} 67 \\ \underline{-21} \\ 46 \end{array} \qquad \begin{array}{r} 46 \\ \underline{-14} \\ 32 \end{array}$$

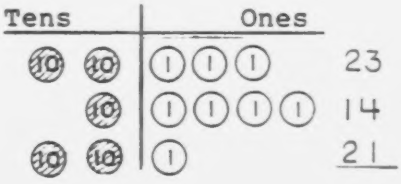
STRATEGY 2: Prepare magnetized plastic or paper discs in two colors. Say, "The blue discs will show tens and the yellow discs will show ones." Label two columns on the chalkboard, tens and ones. Ask a student to place the colored discs in the columns to show 2 tens and 3 ones and to write the number 23 to the right of the counters.

e.g.,



Repeat this procedure by adding discs and numbers representing 14 and 21.

e.g.,



2.02.01

STRATEGY 2: cont'd

Ask a student to add all the discs and numbers written on the chalkboard. Move the top group of tens and ones counters to the bottom. Rewrite the numbers so that they are next to their respective counters. Say, "Do we still have 58? Count the tens and ones and add the numbers as a check. Addition can be checked by changing the order of the numbers." Repeat this procedure with other examples.

Note: Multiple subtraction may also be used as a check after the necessary subtraction skills have been taught.

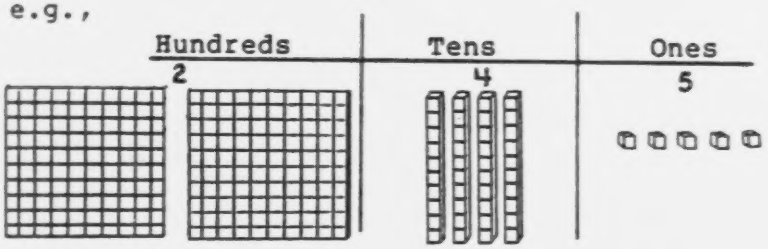
e.g.,

$$\begin{array}{r} 23\\ 14\\ +\underline{21}\\ 58 \end{array} \qquad \begin{array}{r} 58\\ -\underline{23}\\ 35 \end{array} \qquad \begin{array}{r} 35\\ -\underline{14}\\ 21 \end{array}$$

2.02.01.02 **add a 3-digit number and a 2-digit number without regrouping (exchange) and check**

STRATEGY 1: Prepare 9 hundreds cards, 9 tens strips and 9 units pieces. Label three columns on the chalkboard: Hundreds, Tens, Ones. Write 245 in the appropriate columns. Say, "Who can read this number? How many ones are there? (5)...tens? (4)...hundreds?" (2) Ask a student to display squared material representing 245. Write 23 below 245 and ask a student to display the squared material.

e.g.,



STRATEGY 1: cont'd

Ask a student to find the sum and write it on the chalkboard. Reverse the addends and the squared material. Elicit that the order of the addends does not affect the outcome of the addition and that reversing the addends is a method used for checking addition.

Note: An alternate check may be used by subtracting one addend from the sum and matching the difference to the other addend. This form of checking may be used after the necessary subtraction skills have been taught.

STRATEGY 2: Adapt Strategy 2, used in P.O. 2.02.01.01, using three different colored discs.

2.02.01.03 **add money with one addend through $9.99 without (exchange) and check**

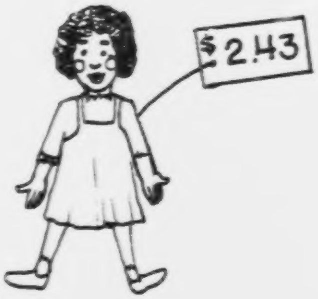
STRATEGY 1: Write dollar signs ($), decimal points (.), and a plus symbol (+) in the form of an example on the chalkboard.

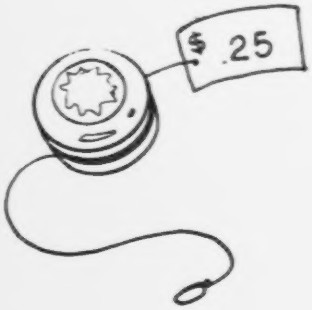
e.g.,

```
 $    .
 +    .
 ──────────
 $    .
```

Prepare and display several objects with price tags.

e.g.,





STRATEGY 1: cont'd

Display the ball, jump rope and doll on one desk and the balloon, eraser and pencil on another desk. Say, "Today we are going shopping. You will buy one item from each desk." Ask a student to choose two items and say the price of each item. Record the prices on the chalkboard within the addition format displayed.

e.g.,

$$\begin{array}{rl} \$4.63 & \text{(doll)} \\ \underline{+\ .35} & \text{(pencil)} \\ \$\ \ . & \end{array}$$

Point to each amount as you read it. Say, "How can you find the total cost of both items?" (add) Ask a student to add the numbers beginning with the ones place. Say, "How much do the doll and pencil cost? ($4.98) How much would it cost to buy the pencil and the doll? ($4.98)

e.g.,

$$\begin{array}{rlcrl} \$4.63 & \text{(doll)} & \quad & \$\ .35 & \text{(pencil)} \\ \underline{+\ .35} & \text{(pencil)} & & \underline{+4.63} & \text{(doll)} \\ \$4.98 & & & \$4.98 & \end{array}$$

Although we switched the numbers we still spent the same amount." Repeat this procedure as students buy other items and record the amounts and sums on the chalkboard.

STRATEGY 2: Prepare play money consisting of nine dollar bills, nine dimes and nine pennies. Display two dollars, four dimes and three pennies. Ask the students how much money is displayed. ($2.43) Write $2.43 on the chalkboard. Point to the dollar sign and the 2. Say, "Two dollars..." Point to the decimal point and the 43. Say, "...and forty-three cents." Display two dimes and five pennies. Say, "How much money is this?" Write $.25 on the chalkboard.

e.g.,

$$\begin{array}{r} \$2.43 \\ \underline{+\ .25} \end{array}$$

STRATEGY 2: cont'd

Ask a student to say the addends, "Two dollars and forty-three cents plus twenty-five cents equals two dollars and sixty-eight cents." Record the sum on the chalkboard including the dollar sign and the decimal point. Say, "Check to see if you are correct by reversing the order of the addends and adding them. If the sum is the same, you have checked your addition."

e.g.,

$$\begin{array}{r} \$2.43 \\ \underline{+\ .25} \\ \$2.68 \end{array} \quad \text{and} \quad \begin{array}{r} \$\ .25 \\ \underline{2.43} \\ \$2.68 \end{array}$$

2.02.01.04 **solve story problems related to skills learned in this module**

STRATEGY 1: Prepare and display pictures of farm animals. Say, "Farmer Brown has 218 chickens and 31 cows on his farm. How could we find out how many animals he has in all?" Elicit from the students that we could add 218 plus 31. Ask a student to write these numbers on the chalkboard and add. Ask a student to add the two numbers and write the answer on the chalkboard.

e.g.,

$$\begin{array}{r} 218 \\ \underline{+31} \\ 249 \end{array} \text{ animals}$$

Say, "What do we call the cows, chickens, pigs, goats or horses on Farmer Brown's farm?" Elicit from the students that we call them animals. Say, "Let's label our answer by writing "animals" next to the sum, 249. Ask a student to retell the story to the class using the information on the

STRATEGY 1: chalkboard.

cont'd

Ask a student to check the answer to the problem and explain.

e.g.,

$$\begin{array}{r} 31 \\ +218 \\ \hline 249 \end{array} \text{ animals}$$

Repeat this procedure using other examples.

Note: Labeling is essential in order for students to relate to the original problem posed.

STRATEGY 2: Write the following story problem on the chalkboard.

> Jane has 232 fish in one tank and 65 fish in another tank. How many fish are there in both tanks?

Say, "What numbers are written in the problem on the chalkboard? How could we find out how many fish are in both tanks?" (add) Ask a student to write an example and solve this problem.

e.g.,

$$\begin{array}{r} 232 \\ +\ 65 \\ \hline 297 \end{array}$$

Say, "How would we label our answer?" Elicit from the students the word, "fish." Write fish next to the answer, 297.

e.g.,

$$\begin{array}{r} 232 \\ +\ 65 \\ \hline 297 \end{array} \text{ fish}$$

Ask a student to check the answer to the problem by reversing the addends.

e.g.,

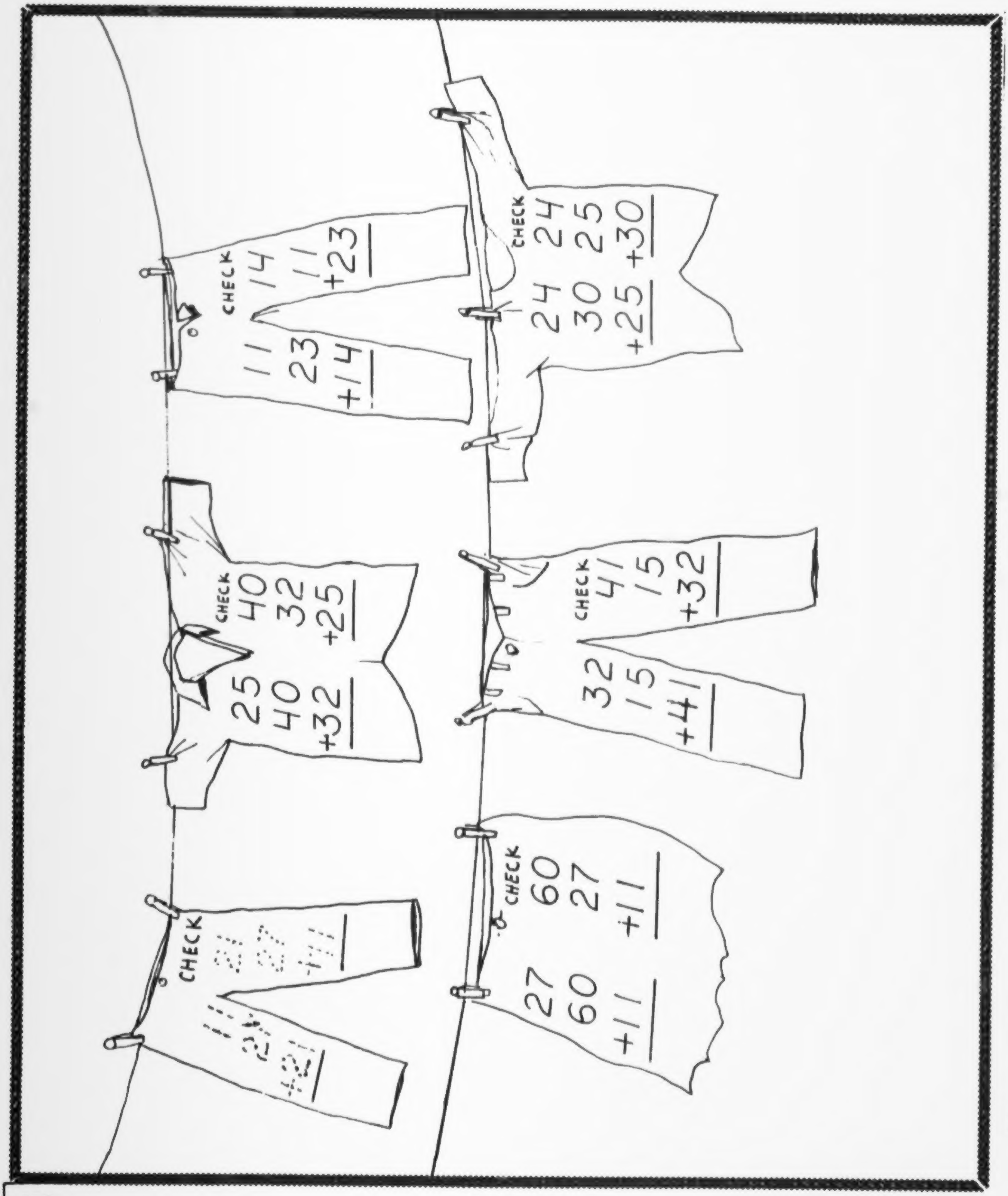
$$\begin{array}{r} 65 \\ +232 \\ \hline 297 \end{array} \text{ fish}$$

Repeat this procedure using other examples.

P.O. 2.02.01.01

NAME:______________________________CLASS:__________DATE:________

Find the sums. Color the clothesline: sums of 0 through 60 blue and sums of 61 through 99 yellow.


11
21
+21
CHECK
21
21
+11
25
40
+32
CHECK
40
32
+25
11
23
+14
CHECK
14
11
+23
27
60
+11
CHECK
60
27
+11
32
15
+41
CHECK
41
15
+32
24
30
+25
CHECK
24
25
+30

P.O. 2.02.01.02

NAME: ______________________ CLASS: __________ DATE: ________

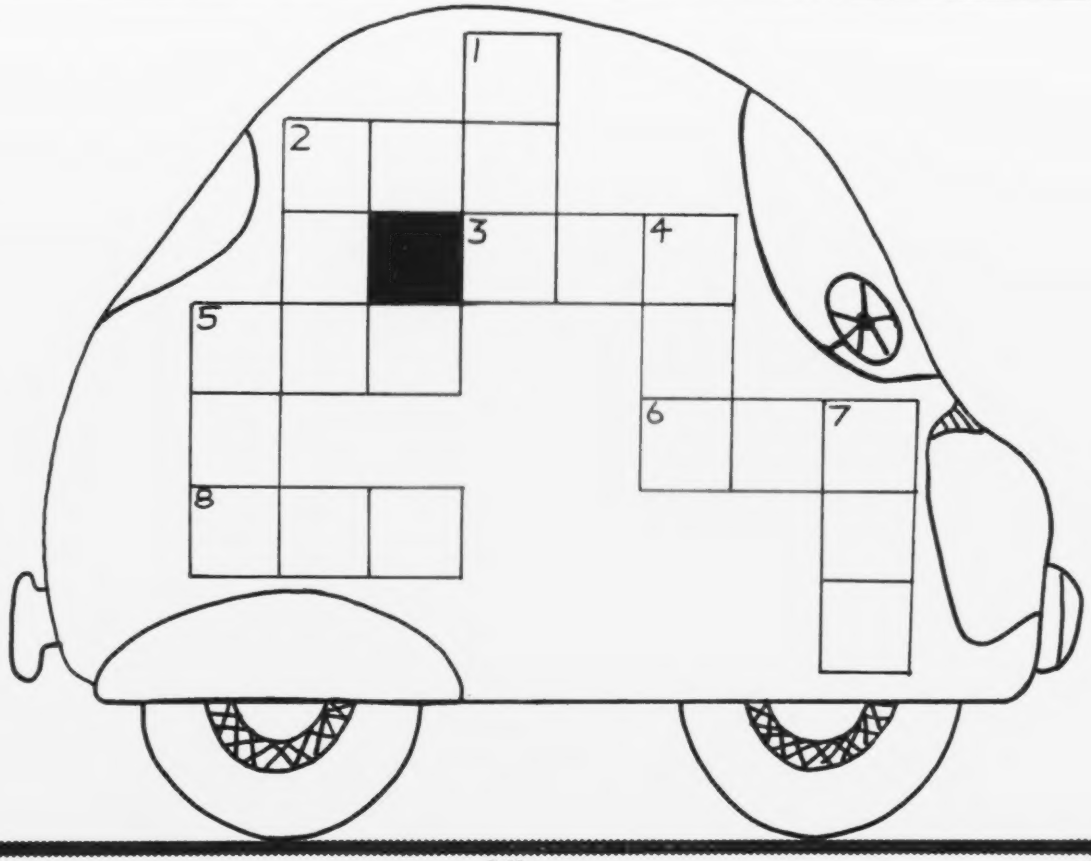
Solve each example. Use these answers to complete the cross number puzzle. Check your answers on a separate paper.

ACROSS

② $\begin{array}{r} 531 \\ +443 \\ \hline \end{array}$ ③ $\begin{array}{r} 102 \\ +224 \\ \hline \end{array}$ ⑤ $\begin{array}{r} 831 \\ +\ 32 \\ \hline \end{array}$ ⑥ $\begin{array}{r} 212 \\ +345 \\ \hline \end{array}$ ⑧ $\begin{array}{r} 350 \\ +222 \\ \hline \end{array}$

DOWN

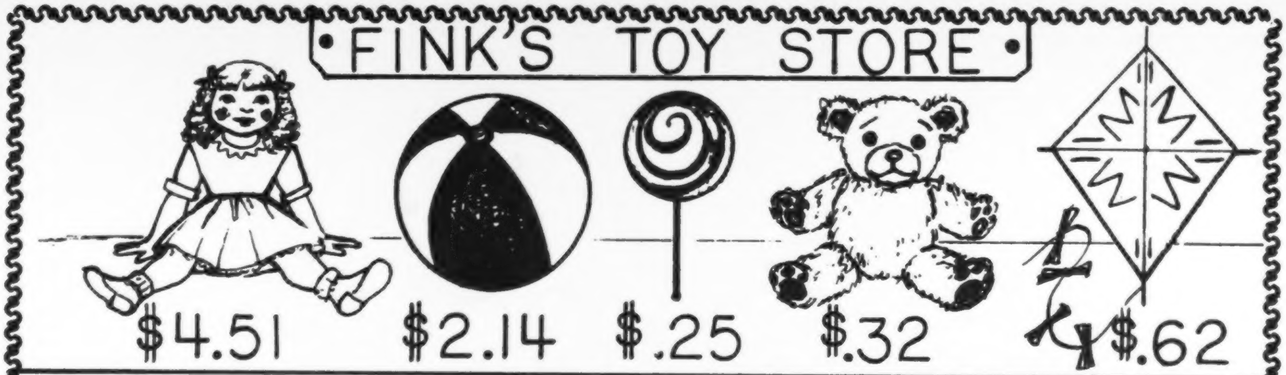
① $\begin{array}{r} 621 \\ +\ 22 \\ \hline \end{array}$ ② $\begin{array}{r} 524 \\ +412 \\ \hline \end{array}$ ④ $\begin{array}{r} 341 \\ +354 \\ \hline \end{array}$ ⑤ $\begin{array}{r} 404 \\ +411 \\ \hline \end{array}$ ⑦ $\begin{array}{r} 747 \\ +\ 41 \\ \hline \end{array}$

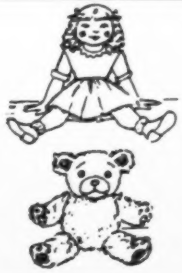


P.O. 2.02.01.03

NAME: ______________________ CLASS: ________ DATE: ________

Write the price next to each picture. Add and check.
Remember to place the $ and . in the correct spots.

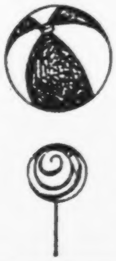

•FINK'S TOY STORE•
$4.51
$2.14
$.25
$.32
$.62



$ 4.51
+ .32
$ 4.83

CHECK

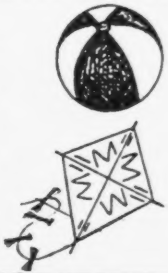
$ .32
+ 4.51
$ 4.83



$ ___.___
+ ___.___
$ ___.___

CHECK

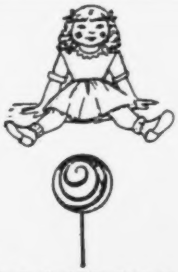
$ ___.___
+ ___.___
$ ___.___



____
+ __________
____

CHECK

____
+ __________
____



____
+ __________
____

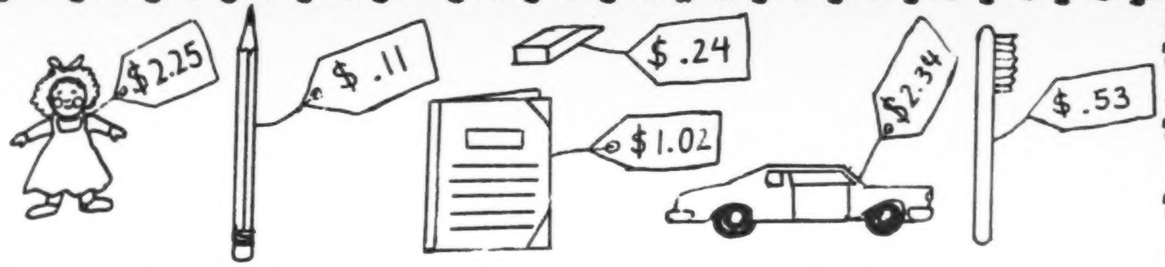
CHECK

____
+ __________
____

P.O. 2.02.01.04

NAME: ______________________ CLASS: ________ DATE: ________

Solve each problem and check.



1. Jon bought a car and a pencil. How much money did he spend?

ADD

$2.34
+ .11
$2.45

CHECK

$ .11
+2.34
2.45

2. Susan wants a doll and an eraser. How much money will she need?

ADD

$.
+ .
$.

CHECK

$.
+ .
$.

3. Carol bought the toothbrush and Jane bought the notebook. How much did they spend?

ADD

$.
+ .
$.

CHECK

$.
+ .
$.

4. Amy's sister bought her the doll and the pencil How much did she spend for Amy's birthday?

ADD

$.
+ .
$.

CHECK

$.
+ .
$.

DO YOU REMEMBER?

55	76	59	64	88
-13	-44	-25	-41	-57

2.03.01 SUBTRACTION OF A 2-DIGIT NUMBER FROM A 3-DIGIT NUMBER WITHOUT REGROUPING (EXCHANGE)

(2 lessons)

PERFORMANCE OBJECTIVES

The student will be able to...

2.03.01.01B subtract a 2-digit number from a 3-digit number without regrouping (exchange) and check;

e.g.,

	check
637	611
-26	+26
611	637

2.03.01.02B subtract money using a 3-digit minuend and a 2-digit subtrahend and check;

e.g.,

	check
$3.98	$3.42
- .56	+ .56
$3.42	$3.98

2.03.01.03B solve story problems related to skills learned in this module.

e.g.,

Sam had $5.75. He spent $.34. How much money did he have left?

	check
$5.75	$5.41
- .34	+ .34
$5.41	$5.75

2.03.01

VOCABULARY

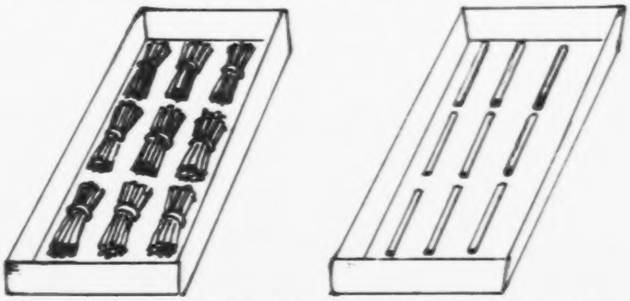
TERMS

subtract
check
minuend
subtrahend

GETTING STARTED

Prepare 9 tens strips and 9 ones squares. Display 5 tens and 7 ones on the chalkboard. Ask a student to identify the number and write 57 on the chalkboard. Write -32 under the 57. Say, "How many ones must we take away? (2) How many tens must we take away?" (3) Ask a student to remove 2 ones and 3 tens from the chalkboard. Say, "How many ones are left?" (5) Ask a student to write 5 in the ones place. Say, "How many tens are left?" (2) Ask a student to write 2 in the tens place. Say, "Fifty seven minus 32 equals 25." Repeat this procedure with other examples.

Place nine bundles of ten straws (sticks) and nine loose straws (sticks) into two shoe box covers.
e.g.,



Ask a student to count the tens and ones and to write that amount on the chalkboard. Say, "We have 99 straws. Who can take out two bundles (20) and three loose straws (3)? How many straws are left?" (76) Write the subtraction example on the chalkboard, e.g., $\begin{array}{r} 99. \\ \underline{-23} \end{array}$

Ask a student to subtract and compare the difference with the amount in the shoeboxes.

GETTING STARTED (cont'd)

Say, "There are 76 straws. Who can take out 41 straws? How many straws are left?" (35) e.g.,

$$\begin{array}{r} 99 \\ -23 \\ \hline 76 \end{array} \nearrow \begin{array}{r} 76 \\ -41 \\ \hline 35 \end{array}$$

Continue to remove straws in amounts that require no regrouping until all the straws have been removed.

e.g.,

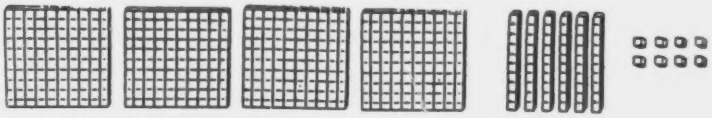
$$\begin{array}{r} 35 \\ -22 \\ \hline 13 \end{array} \nearrow \begin{array}{r} 13 \\ -12 \\ \hline 1 \end{array} \nearrow \begin{array}{r} 1 \\ -1 \\ \hline 0 \end{array}$$

2.03.01 **subtract a 2-digit number from a 3-digit number without regrouping (exchange) and check**

STRATEGY 1: Prepare squared material for demonstration, and squared material and a place value mat for each student or group of students. Write 458 on the chalkboard. Ask a student to read the number. Say, "How many hundreds are in this number? (4) Show 4 hundreds on your mat." Demonstrate with squared material at the chalkboard as the students work at their place value mats. Continue this procedure with the tens and ones.

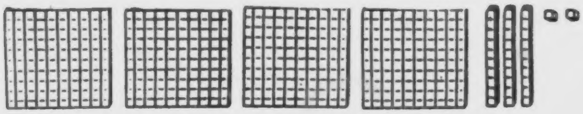
e.g.,

458



Write -26 under 458. Say, "How many ones will you remove?" (6) Ask a student to take away 6 ones from the squared material at the chalkboard as the other students do the same at their desks. Repeat this procedure with the tens. Say, "Will we take away any hundreds? (No) Why not?" (There are no hundreds in the subtrahend.) Ask a student to read the amount that is left? Repeat this procedure in the subtraction example, taking away ones, then tens, then hundreds. Compare the remaining squared material with the answer in the subtraction example.

e.g.,



$$\begin{array}{r}458\\ -\ 26\\ \hline 432\end{array}$$

Say, "We can check to make sure our answer is correct. We have 432. Let's put back the 2 tens

STRATEGY 1: cont'd

and 6 ones we removed. Put the squared material back and write 432 on the chalkboard.

$$\begin{array}{r} 432 \\ +\ 26 \\ \hline \end{array}$$

Ask a student to add the numbers and compare the answer with the squared material. Say, "We started with 458 when we checked our example. We ended with 458. Our answer was correct."

e.g.,

$$\begin{array}{r} 458 \\ -\ 26 \\ \hline 432 \end{array} \qquad \begin{array}{r} 432 \\ +\ 26 \\ \hline 458 \end{array}$$

Repeat this procedure with other examples.

STRATEGY 2: Prepare and display nine red chips, nine blue chips, and nine yellow chips (or colored paper circles). Label a place value chart on the chalkboard.

e.g.,

Hundreds	Tens	Ones

Say, "We will use these chips to represent numbers. The red chips will show hundreds, the blue chips will show tens, and the yellow chips will show ones."

Write 465 on the chalkboard. Ask a student to read the number. Ask another student to show that amount on the place value chart by taping the correct number of red, blue, and yellow chips (paper circles) on the chart.

e.g.,

Hundreds	Tens	Ones
ⓡ ⓡ	ⓑ ⓑ	ⓨ ⓨ
ⓡ ⓡ	ⓑ ⓑ	ⓨ ⓨ
	ⓑ ⓑ	ⓨ

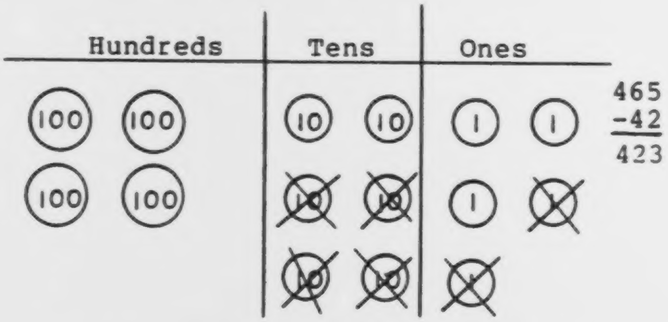
465

2.03.01

STRATEGY 2: cont'd

Say, "We want to subtract 42 from the amount we have." Write -42 under 465 on the chalkboard. Say, "How many ones shall we take away? (2) Ask a student to remove 2 yellow chips and to tell how many ones are left. (3) Write a 3 in the ones place in the example. Say, "How many tens will we take away?" (4) Ask a student to remove 4 chips and to tell how many are left. (2) Write 2 in the tens place in the example. Say, "Shall we take away any hundreds? (No) Why not? How many hundreds (red chips) are left?" Write 4 in the hundreds place in the example.

e.g.,



Say, "There is a way we can check our subtraction to see if we are correct. We have 423.

If we put back the 42 we removed, we should end up with the amount with which we started. Let's see if it works." Write $\begin{array}{r}423\\ \underline{+\ 42}\end{array}$ on the chalkboard.

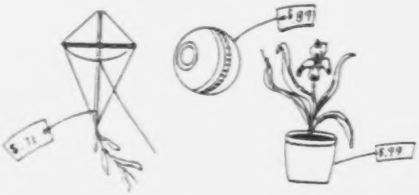
Replace the 4 blue chips and the 2 yellow chips. Call upon a student to add the numbers. Say, "We have 465, which is the number with which we started, so our answer is correct." Repeat this procedure with other examples.

2.03.01.02 **subtract money using a 3-digit minuend and a 2-digit subtrahend and check**

2.03.01

STRATEGY 1: Prepare pictures of objects for sale.

e.g.,



Say, "We have 1 dollar and 99 cents." Write that amount on the chalkboard using dollar and cents notation. Ask a student to choose an object for sale, such as the kite, and tell its price, and write it underneath the $1.99.

e.g.,

$$\begin{array}{rl} \$1.99 & \\ \underline{-\ \ .71} & \text{(kite)} \\ \$\ \ \ . & \end{array}$$

Say, "How much money will you have left after you buy the kite?"

Ask a student to perform the subtraction at the chalkboard. Ask another student to check the example at the chalkboard by adding back the amount we took away.

e.g.,

$$\begin{array}{rcr} \$1.99 & \qquad & \$1.28 \\ \underline{-\ \ .71} & & \underline{+\ \ .71} \\ \$1.28 & & \$1.99 \end{array}$$

Repeat this procedure with other objects for sale.

STRATEGY 2: Prepare play money to show nine dollars and ninety-nine cents (9 one dollar bills, 9 dimes and 9 pennies). Display 2 dollars, 4 dimes, and 7 pennies on the chalkboard. Say, "How much money is on the chalkboard?" Ask a student to write it in dollar and cents notation on the chalkboard.

e.g.,

$2.47

STRATEGY 2: cont'd

Remove 2 dimes and 2 pennies. Say, "How much money did I subtract?" Ask a student to write a subtraction example to show what has happened.

e.g.,

$$\begin{array}{r} \$2.47 \\ -\ \ .22 \\ \hline \$\ \ \ \ . \ \ \ \ \end{array}$$

Say, "How much money is left? Is that the same amount as the coins and bills on the chalkboard? There is another way to check our work. If we put back the $.22 by adding it to the $2.25 we have, we should get the amount with which we started." Write the addition example on the chalkboard and ask a student to solve it as a check.

e.g.,

$$\begin{array}{r} \$2.25 \\ +.22 \\ \hline \$2.47 \end{array}$$

Repeat this procedure with other amounts of money.

2.03.01.03 **solve story problems related to skills learned in this module**

STRATEGY 1:

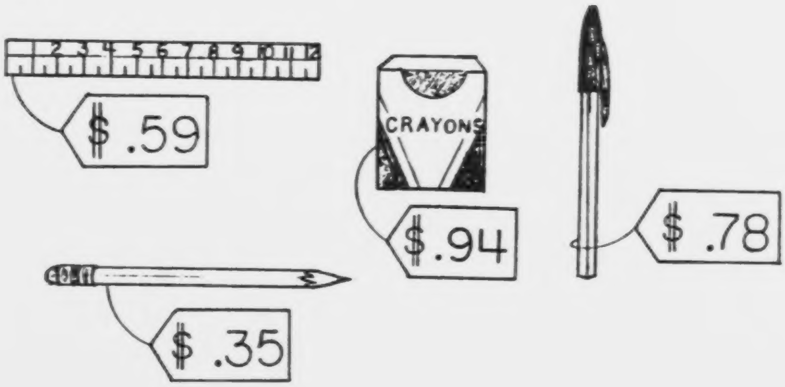
Say, "Today, we will help Paul and Karen solve some problems. Paul has 147 baseball cards, but 34 of them are doubles. How many of his cards are not doubles? How can we help Paul solve his problem? What important words help us to know which operation to use?" Ask a student to write the example on the chalkboard and ask another student to subtract. Say, "We have learned a way to check our answer." Ask a student to check the example at the chalkboard.

e.g.,

$$\begin{array}{rl} 147 & \\ -34 & \\ \hline 113 & \text{cards} \end{array} \qquad \begin{array}{r} \underline{\text{Check}} \\ 113 \\ +34 \\ \hline 147 \end{array}$$

Repeat this procedure with other word problems.

STRATEGY 2: Prepare and display items or pictures of items with price tags attached.
e.g.,



Say, "Today we will buy some items. We have $1.99. Ask a student to write one dollar and ninety-nine cents on the chalkboard. Ask another student to choose an item to buy, e.g., the pencil, and write its cost under the $1.99 on the chalkboard. Say, "Let's see how much money you will have left."
e.g.,

$$\begin{array}{r} \$1.99 \\ \underline{-\ \ .35} \\ \$1.64 \end{array} \quad \text{(pencil)}$$

Ask another student to check the example to see if it is correct.

$$\begin{array}{r} \$1.64 \\ \underline{+\ \ .35} \\ \$1.99 \end{array}$$

Repeat this procedure with the other items. When all the examples have been completed and checked at the chalkboard, say, "Look at the amount left after each purchase. Which items could we have purchased and still have more than $1.25 left?"(pencil, ruler)

P.O. 2.03.01.01

NAME: ______________________ CLASS: ________ DATE: ________

Subtract and check your work. Color in each shape which has an answer to an example.

1.) CHECK

$\begin{array}{r} 394 \\ -62 \\ \hline 332 \end{array}$ $\begin{array}{r} 332 \\ +62 \\ \hline 394 \end{array}$

2.) CHECK

$\begin{array}{r} 715 \\ -12 \\ \hline \end{array}$ ____

3.) CHECK

$\begin{array}{r} 488 \\ -21 \\ \hline \end{array}$ ____

4.) CHECK

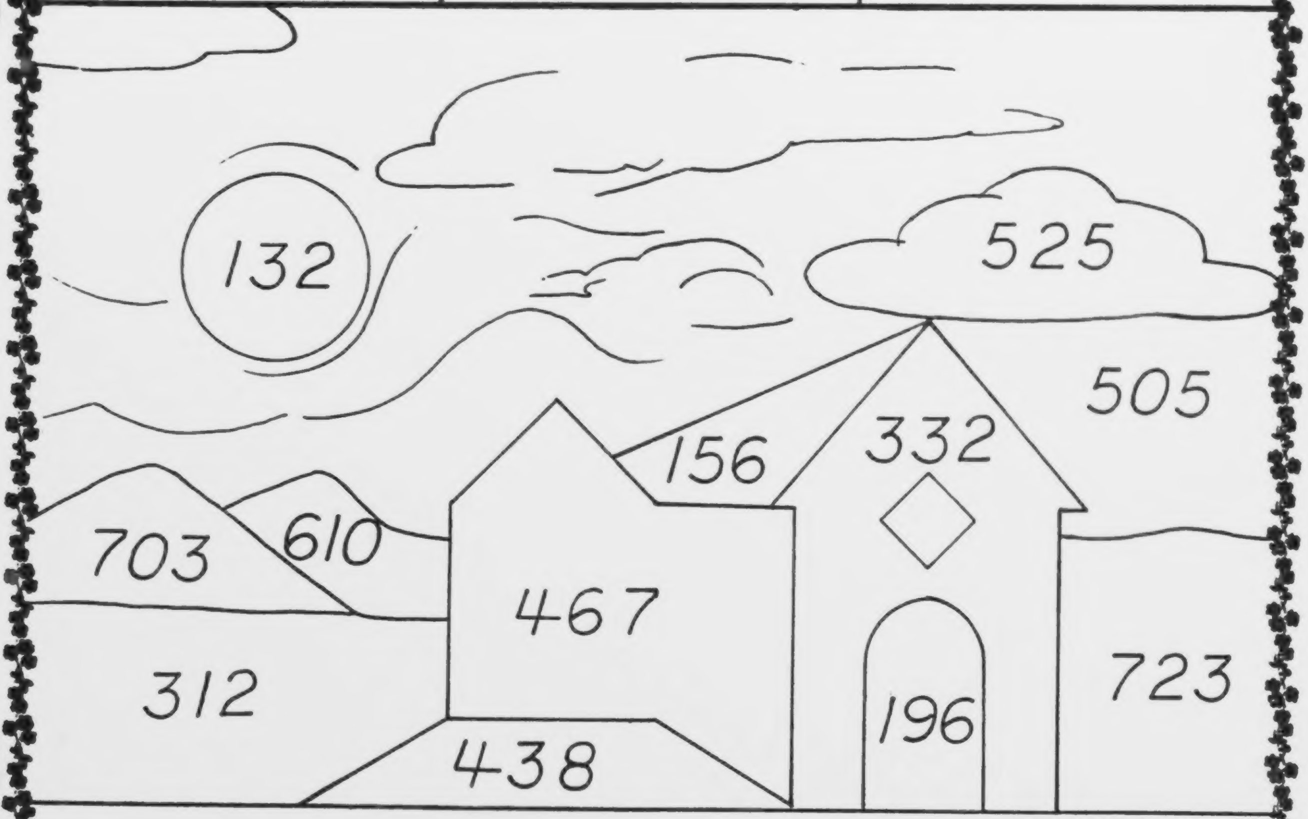
$\begin{array}{r} 642 \\ -32 \\ \hline \end{array}$ ____

5.) CHECK

$\begin{array}{r} 555 \\ -30 \\ \hline \end{array}$ ____

6.) CHECK

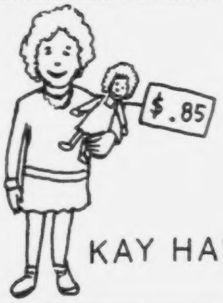
$\begin{array}{r} 179 \\ -23 \\ \hline \end{array}$ ____



P.O. 2.03.01.02

NAME: ______________________ CLASS: __________ DATE: ________

Help the students buy toys. Solve each example and check.
Draw a ring around the student who has the most money left.



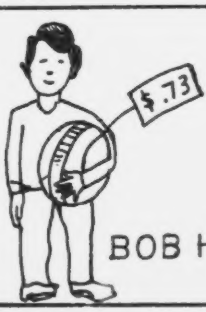
KAY HAS $1.96

SUBTRACT

$1.96
-.85
$1.11

CHECK

1.11
+.85
$1.96

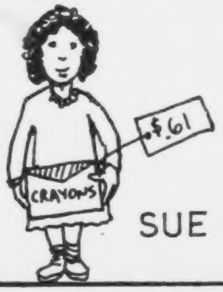


BOB HAS $1.85

SUBTRACT

$1.85
- .73
$

CHECK

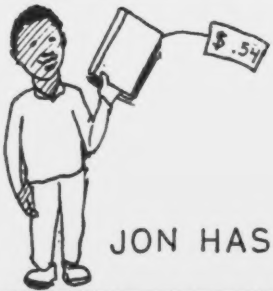


SUE HAS $1.78

SUBTRACT

$ 1.78
- .61
$

CHECK



JON HAS $1.66

SUBTRACT

$ 1.66
- .54
$

CHECK

DO YOU REMEMBER?

School Tour

1. What is the number of your classroom? __________
2. How many classrooms are on the same floor as your classroom? __________
3. In your school, how many steps make one flight? __________

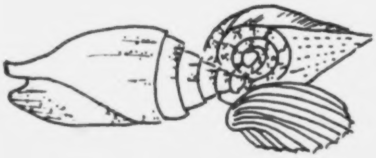
P.O. 2.03.01.03

NAME:______________________________ CLASS:__________ DATE:________

Solve each problem.

1. Edward has 137 marbles
Lisa has 24 marbles.
How many more marbles does
Edward have than Lisa?

SOLVE	CHECK
137	113
- 24	+ 24
113 marbles	137

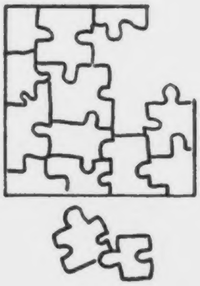


2. Anna collected 268 large and small sea shells.
Sixty-five seashells were large.
How many were small?

SOLVE CHECK

3. Ricardo earned $3.75 doing chores.
He bought a sticker for $.61.
How much money does Ricardo have left?

SOLVE CHECK



4. Tina needs $2.89 to buy a puzzle.
She has saved $.75.
How much more money does she need?

SOLVE CHECK

2.02.02 ADDITION OF 3-DIGIT NUMBERS WITHOUT REGROUPING (EXCHANGE)

(2-3 lessons)

PERFORMANCE OBJECTIVES

The student will be able to...

2.02.02.01B add two 3-digit numbers without regrouping (exchange) and check;

e.g.,

	check
124	131
+ 131	+124
255	255

2.02.02.02B add three or more 3-digit numbers without regrouping (exchange) and check;

e.g.,

	check
111	232
121	121
+ 232	+ 111
464	464

2.02.02.03B add money through $9.99 without regrouping (exchange) and check;

e.g.,

	check
$1.62	$2.17
+2.17	+1.62
$3.79	$3.79

2.02.02.04B solve story problems related to skills learned in this module.

e.g.,

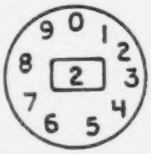
Mr. Jones drove 162 miles one day and 217 miles another day. How many miles did he drive altogether?

	check
162	217
+ 217	+162
379 miles	379

GETTING STARTED

Prepare a set of gummed numeral cards labeled 1 through 9. On the chalkboard, draw a large circle with the numerals 0 through 9 around the edge. Place a numeral card in the center of the circle.

e.g.,



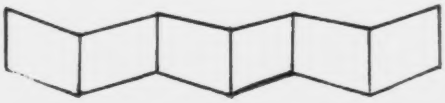
Divide the class into two groups, A and B. Ask a student to come to the chalkboard. Say, "Add the numeral in the center of the circle to each number around the edge of the circle. Begin with 2 + 0 and continue clockwise, e.g., 2+1, 2+2,...

Each student who correctly adds all addends wins a point for his/her team.

Repeat this procedure placing other numeral cards in the center of the "addition circle."

Cut a piece of adding machine tape and fold it several times so that when opened, it may be marked at the folds.

e.g.,



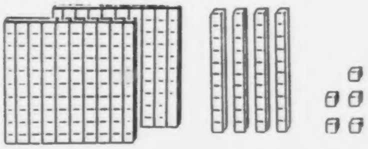
Prepare a blue car for the BLUE team, a green car for the GREEN team and two sets of numeral cards, 0 through 9. Place the shuffled cards with the numerals face down. Ask a student from the BLUE team to select two cards from the shuffled pack. Say, "What is the sum of the two cards?" The student may move the BLUE car one space if he/she is correct.

Repeat this procedure until one team wins the race.

2.02.02

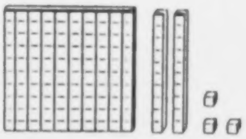
2.02.02.01 **add two 3-digit numbers without regrouping (exchange) and check**

STRATEGY 1: Prepare squared material (9 hundreds, 9 tens, and 9 ones) and ten cards (8 $\frac{1}{2}$" x 11"). Display 2 hundreds, 4 tens and 5 ones. Say, "What number is named?" Write 245 on one of the cards and tape it to the chalkboard next to the squared material.
e.g.,



$\boxed{245}$

Display 1 hundred, 2 tens and 3 ones below the first set.
e.g.,



$\boxed{123}$

Say, "How many hundreds, tens and ones are in this set? What number is named?" Write 123 on one of the 8 $\frac{1}{2}$" x 11" cards and tape it beneath the first number. Say, "How many ones are displayed in all? (8) How many tens...? (6) How many hundreds...? (3) What sign tells us we are adding?" Write a plus sign to the left of the $\boxed{123}$ and draw a line below it.
e.g.,

$$\begin{array}{r} \boxed{245} \\ + \underline{\boxed{123}} \end{array}$$

STRATEGY 1: cont'd

Ask a student to read the two addends and then add the ones, tens and hundreds. Write the sum. Repeat this procedure with other addition examples using squared material. Ask the students to check their work by changing the order of the addends.

e.g.,

$$\begin{array}{r} \underline{\text{Check}} \\ \boxed{123} \\ +\boxed{245} \\ \hline 368 \end{array}$$

STRATEGY 2:

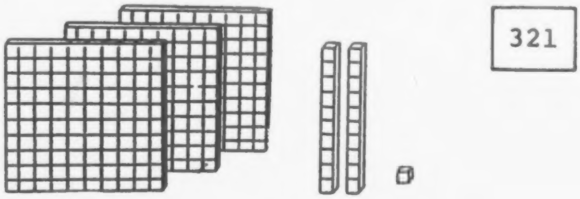
Prepare squared materials (9 hundreds, 9 tens, 9 ones) and a pack of 10 number cards.

e.g.,

$\boxed{321}$ $\boxed{442}$ $\boxed{234}$ $\boxed{152}$ $\boxed{545}$ $\boxed{412}$ $\boxed{324}$ $\boxed{112}$ $\boxed{440}$ $\boxed{341}$

Model one of the numbers from the pack on the chalkboard using squared material.

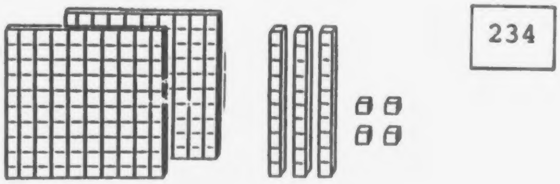
e.g.,



Ask a student to find the number that matches the model and place it beside it (321).

Model another number from the pack using squared material.

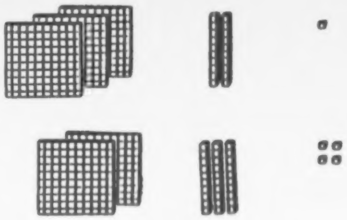
e.g.,



2.02.02

STRATEGY 2: cont'd

Ask a student to find the number that matches the model and place it beside it (234). Model the sum.
e.g.,



Say, "How many ones are displayed in all? (5) How many tens...? (5) How many hundreds...? (5) What sign tells us we are adding?" (+) Write a plus sign to the left of 234 and draw a line below it.
e.g.,

321
+234
555

Ask a student to read the two addends and then add the ones, the tens and the hundreds. Ask the students to check their work by changing the order of the addends.
e.g.,

check

321 234
+234 +321
555 555

Repeat this procedure with other addition examples using squared material.

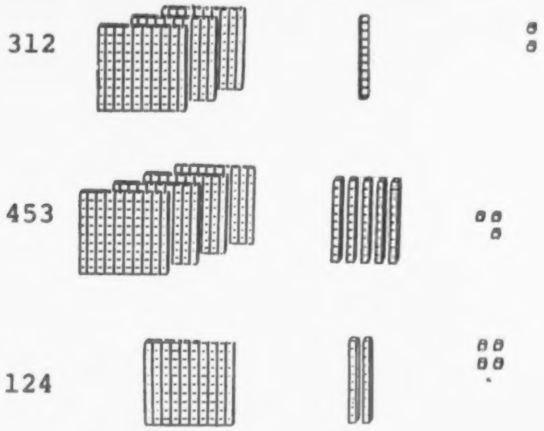
2.02.02.02 **add three or more 3-digit numbers without regrouping (exchange) and check**

STRATEGY 1: Prepare squared material (9 hundreds, 9 tens, and 9

STRATEGY 1: cont'd

ones) and a pack of ten 3-digit numeral cards. Display three numeral cards on the chalkboard vertically. Say, "I will use the number cards with the squared material to display hundreds, tens, and ones." Ask a student to model each number card using the squared material.

e.g.,



Say, "How many ones are displayed in all? (9) How many tens are displayed in all? (8) How many hundreds are displayed in all? (8) What symbol tells you we are adding?" Write a plus sign to the left of 124 and draw a line below it. Ask a student to read the three addends and then add the ones, tens and hundreds.

Repeat this procedure with other addition examples using squared material. Ask the students to check their work by changing the order of the addends.

STRATEGY 2: Prepare and display a place value chart with pockets for ones, tens, and hundreds. Prepare, label and display 9 hundreds, 9 tens, and 9 ones. Write an example on the chalkboard, e.g.,

$$\begin{array}{r}222.\\242\\+433\\\hline\end{array}$$

STRATEGY 2: cont'd

Say, "We will use our place value chart to find the sum. How many ones are there in 222? (2) Place two ones in the ones pocket. How many tens are there? (2) Place two tens in the tens pocket. How many hundreds are there? Place two hundreds in the hundreds pocket."

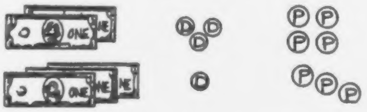
Repeat this procedure for 242 and for 433. Say, "How many ones are there in all? (7) ...tens? (9) ...hundreds?" Write each answer in the appropriate place. Say, "The sum of the three numbers is 897."

To check, repeat this procedure beginning with 433 and add up.

2.02.02.03 **add money through $9.99 without regrouping (exchange) and check**

STRATEGY 1: Prepare play money for demonstration. Say, "This is a story about two sisters who saved money to buy a ball which cost $5.00. One sister, Anna, saved two dollars and thirty-four cents." Display $2.34 and ask a student to write $2.34 on the chalkboard. Say, "The other sister, Bea, saved three dollars and thirteen cents." Ask another student to write $3.13 on the chalkboard.

e.g.,



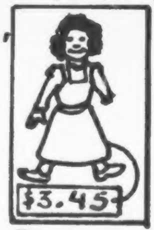
$2.34
$3.13

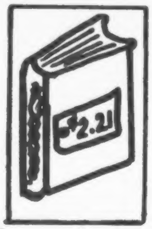
Say, "What sign tells us how we can find the amount they saved in all?" Write a plus sign to the left of $3.13 and draw a line below it. Say, "How much money did they save? Did they have enough money to buy the $5.00 ball?" Ask a student to check the work by reversing the addends.

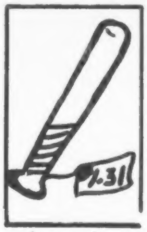
Repeat this procedure with other amounts of money.

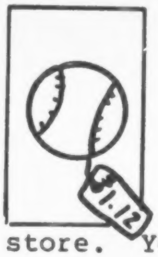
STRATEGY 2: Prepare and display picture cards showing items with prices written on them. (The prices should be chosen so that the addition of any two items will not involve regrouping and their sum will not exceed $9.99.)

e.g.,









Say, "We are going shopping in the toy store. You may buy two items." Ask a student to come to the chalkboard and choose items to buy. When the student has made his/her choice, e.g., the doll and the book, say, "How much does the doll cost?" ($3.45) ...the book?" ($2.21) Write the amounts on the chalkboard.

e.g.,

$$\begin{array}{ll} \$3.45 & \text{(doll)} \\ \underline{\$2.21} & \text{(book)} \end{array}$$

Say, "How can we find out how much it will cost to buy both items?" (add) Place a plus sign in the proper place in the example and ask the student to find the sum. Say, "Don't forget the dollar sign and decimal point in your answer." Ask another student to come to the chalkboard and check the example by reversing the addends.

Repeat this procedure with other pairs of items the students choose.

2.02.02

2.02.02.04 **solve story problems related to skills learned in this module**

STRATEGY 1: Display a partial school register showing the number of students in a grade.
e.g.,

Grade	Number of Pupils
Grade Two	144
Grade Three	135
Grade Four	142

Say, "Each week during the spring two grades go to the circus. During this week a total of 277 students are going to the circus." Ask the students to find which two grades are going. Say, "Is it grade two and grade three, grade three and grade four, or grade two and grade four?" Elicit responses which lead them to a strategy to arrive at a solution, e.g., say, "Which two numbers add up to seven in the ones place?"

Repeat this procedure using other stories about the grades and their registers.

STRATEGY 2: Prepare and display a fast food menu.

FOOD		DRINKS	
Hamburger	$1.62	Large Cola	$1.10
Fish	$1.54	Large Chocolate Milk	$1.35

Say, "This is a menu at the fast food store in my neighborhood. Yesterday, my son spent $2.64 for lunch. He had something to eat and something to drink. What do you think he had for lunch?"

Elicit responses which lead them to a strategy

STRATEGY 2: cont'd

for a solution. Say, "This is a hint. Which two things, one from FOOD and one from DRINKS, add up to 4 in the ones place?"

Repeat this procedure with other stories about the menu.

Variation: Ask the students to use the chart to create problems for the class to solve, changing the answer conditions.

P.O. 2.02.02.01

NAME: ______________________ CLASS: ________ DATE: ________

Add. Write the sums in the rocket to complete the cross number puzzle. Check your answers on a separate paper.

ACROSS

1.
  213
+ 475

2.
  543
+ 251

4.
  167
+ 431

5.
  424
+ 572

6.
  515
+ 173

DOWN

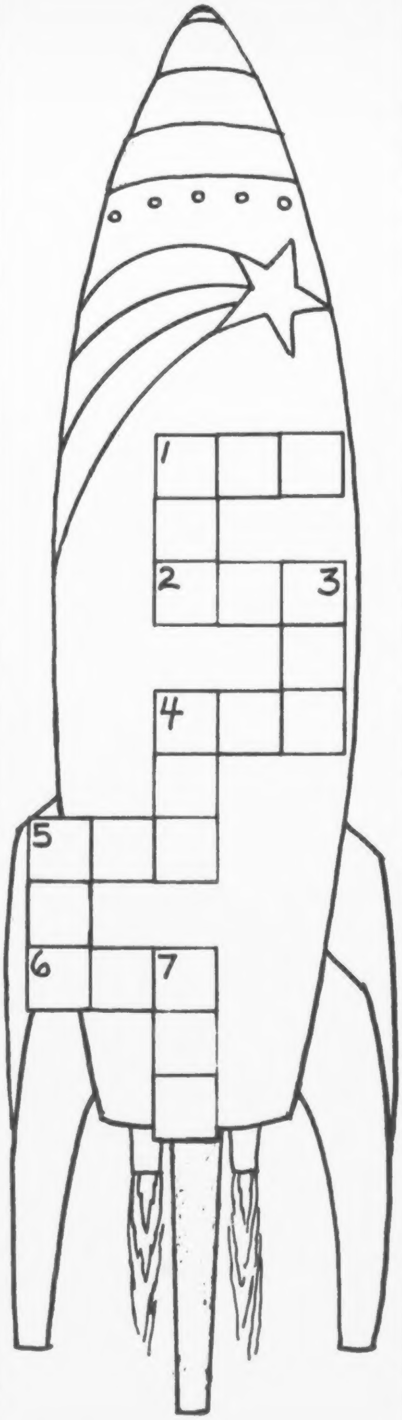
1.
  324
+ 313

3.
  136
+ 362

4.
  235
+ 311

5.
  632
+ 364

7.
  627
+ 252



P.O. 2.02.02.02

NAME: ____________________ CLASS; ________ DATE: ________

Add. Use the code to find the secret message.
Check your answers on a separate paper.

A=777
B=938
C=676
E=987
T=396
F=886
H=999
U=799
M=587
N=959

☐ M
241
132
+214
587

☐
432
114
+231

☐
164
131
+101

☐
405
324
+270

☐
251
104
+321

☐
414
232
+131

☐
724
113
+122

☐
211
412
+315

☐
316
421
+250

☐
213
342
+331

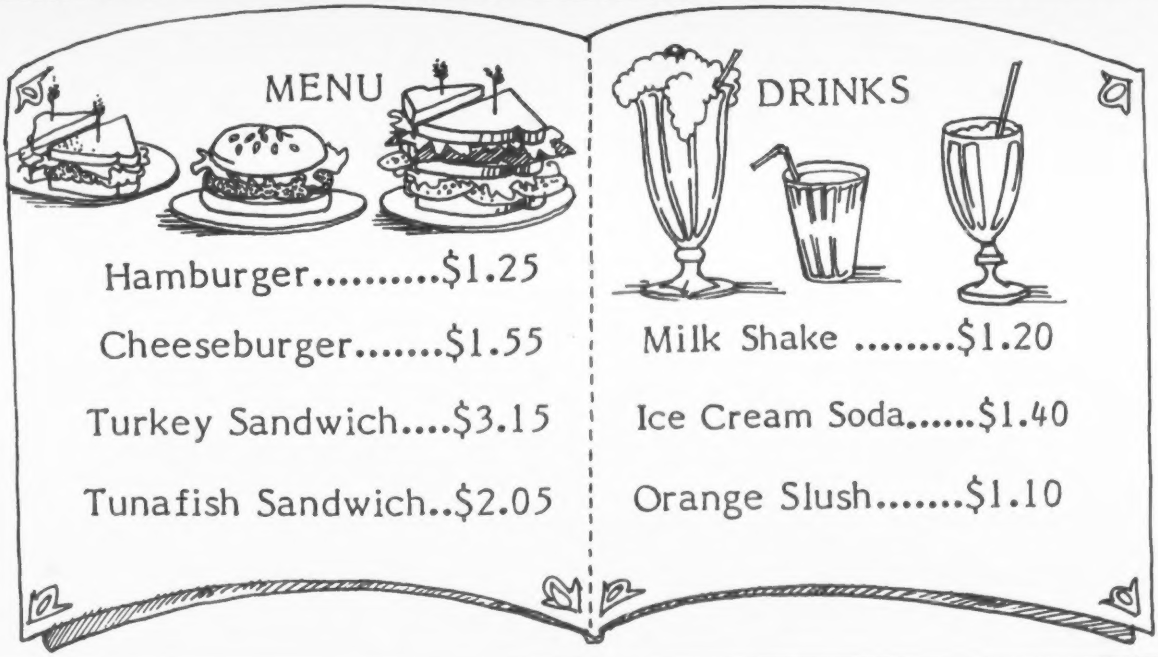
☐
108
230
+461

☐
524
124
+311

P.O. 2.02.02.03

NAME: ____________________ CLASS: __________ DATE: ________

Read the menu to find each price. Write the price next to each item and then add. Check your answers on a separate paper.



MENU

Hamburger	$1.25
Cheeseburger	$1.55
Turkey Sandwich	$3.15
Tunafish Sandwich	$2.05

DRINKS

Milk Shake	$1.20
Ice Cream Soda	$1.40
Orange Slush	$1.10

Hamburger	$1.25
Milk Shake	$1.20
Total	$2.45

Cheeseburger	.
Milk Shake	.
Total	.

Tunafish Sandwich	.
Ice Cream Soda	.
Total	.

Tunafish Sandwich	.
Ice Cream Soda	.
Total	.

Turkey Sandwich	.
Orange Slush	.
Total	.

Hamburger	.
Orange Slush	.
Total	.

P.O. 2.02.02.04

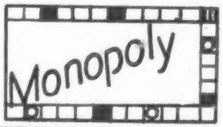
NAME:______________________ CLASS:________ DATE:________

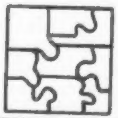
Read, solve, and check each problem.

1. Mrs. Stern sold 431 flowers in March and 560 in April. How many flowers were sold altogether?

ADD:
431
+560

CHECK:
560
+431

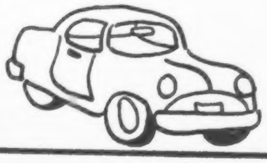




2. Craig bought a game for $5.20 and a puzzle for $1.35. How much did he spend in all?

ADD:

CHECK:



3. Mr. Colon drove 341 miles one day and 425 miles the next day. How many miles did he drive in the two days?

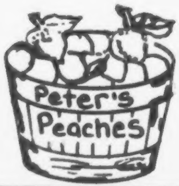
ADD:

CHECK:

4. A doll costs $4.25 and a baseball glove costs $4.50. How much do they cost altogether?

ADD:

CHECK:



Bella's
Peaches

5. Peter picked 135 peaches. Bella picked 144 peaches. How many peaches did they pick in all?

ADD:

CHECK:

Unit 23

2.03.02 SUBTRACTION OF A 3-DIGIT NUMBER FROM A 3-DIGIT NUMBER WITHOUT REGROUPING (EXCHANGE)

(2-3 lessons)

PERFORMANCE OBJECTIVES

The student will be able to...

2.03.02.01B subtract two 3-digit numbers without regrouping (exchange) and check; e.g.,

$$\begin{array}{r} 548 \\ -325 \\ \hline 223 \end{array} \qquad 548 - 325 = 223 \qquad \begin{array}{r} \underline{\text{check}} \\ 223 \\ +325 \\ \hline 548 \end{array}$$

2.03.02.02B subtract money through \$9.99 without regrouping (exchange) and check; e.g.,

$$\begin{array}{r} \\ \$4.83 \\ -\ 2.71 \\ \hline \$2.12 \end{array} \qquad \begin{array}{r} \underline{\text{check}} \\ \$2.12 \\ +\ 2.71 \\ \hline \$4.83 \end{array}$$

2.03.02.03B solve story problems related to skills learned in this module. e.g.,

Mary had \$4.83. She spent \$2.71. How much money did she have left?

$$\begin{array}{r} \\ \$4.83 \\ -\ 2.71 \\ \hline \$2.12 \end{array} \qquad \begin{array}{r} \underline{\text{check}} \\ \$2.12 \\ +\ 2.71 \\ \hline \$4.83 \end{array}$$

2.03.02

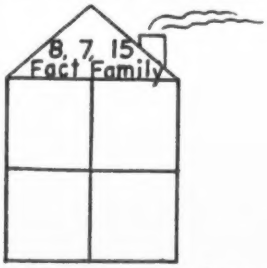
VOCABULARY

TERMS	SYMBOLS
dollar sign	$
decimal point	.

GETTING STARTED

Prepare and display the FACT FAMILY'S number house on the chalkboard and three related numbers (8, 7, 15).

e.g.,



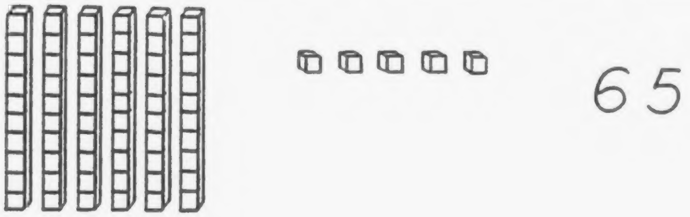
Say, "Who knows a number sentence using 8, 7 and 15?" Write 8 + 7 = 15 in the box in the upper left corner of the house. Say, "Who knows another addition sentence for this family?" (7 + 8 = 15) Write it in the box in the lower left corner. Say, "Who knows another related number sentence?" Elicit responses from the students for 15 - 7 = 8 and 15 - 8 = 7. Ask a student to write them in the house on the chalkboard.

Say, "You can learn your subtraction facts by relating them to the addition facts you already know. You can also use related addition facts to check subtraction.

Repeat this procedure with other related numbers.

Prepare and display six tens and five ones on the chalkboard using squared material. Write 65 on the chalkboard beside the model.

e.g.,



GETTING STARTED cont'd

Say, "This is a model of the number 65." Point to the squared material. Say, "We will take away 12." Write 12 under the 65 and model it with the squared material. Draw a circle and an arrow around one ten and two ones (12) to show it is being taken away. Point to the materials. Say, "How many ones shall I take away? (2) How many are left? (3) How many tens shall I take away? (1) How many are left?" (5) Write 53 as the difference.

Say, "You can check your subtraction by adding." Ask a student to use the same squared material to model the check and to write the example.

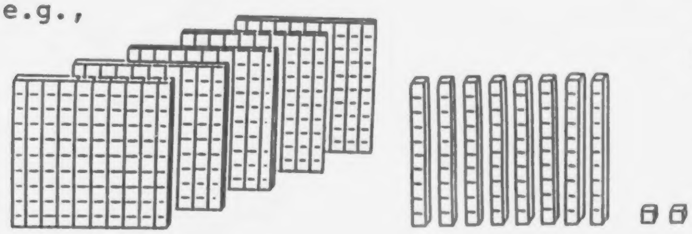
Repeat this procedure using other numbers and squared material.

2.03.02

2.03.02.01 **subtract two 3-digit numbers without regrouping (exchange) and check**

STRATEGY 1: Prepare squared material to model numbers at the chalkboard. Display five hundreds, eight tens and two ones. Write 582 on the chalkboard beside the model.

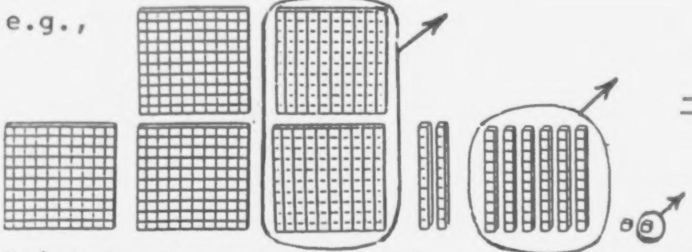
e.g.,



582

Say, "We will take away 261. Circle 2 hundreds, 6 tens and 1 one with an arrow." Write 261 under 582 with a minus symbol.

e.g.,



582
-261

Point to the material and say, "How many ones shall I take away? (1) How many are left? (1) How many tens shall I take away? (6) How many are left? (2) How many hundreds shall I take away? (2) How many are left?" (3) Ask a student to read the difference you have written. (321) Say, "Look at the model. We took away 2 hundreds, 6 tens and 1 one. We can check our subtraction example by adding that number to our answer." Ask a student to use the same squared material to model the check.

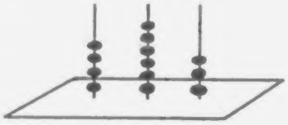
STRATEGY 1: cont'd

Repeat this procedure beginning with a horizontal format which is then rewritten vertically.

STRATEGY 2:

Prepare and display an abacus. Write the example, 463 - 241 horizontally on the chalkboard while showing 463 on the abacus.

e.g.,



Say, "If we take away 241 from 463, how many ones should we take away? (1) How many ones are left? (2) How many tens should we take away? (4) How many are left? (2) How many hundreds should we take away? (2) How many are left?" (2) Record the work on the chalkboard and demonstrate the difference on the abacus by moving the appropriate beads, e.g., 463 - 241 = 222. Write the difference on the chalkboard. Ask a student to read the number we took away from 463. (241) Say, "How many ones did we take away? (1)...tens? (4)...hundreds? (2) I am going to add that number, 241, to 222,

e.g.,

$$\begin{array}{r} 222. \\ \underline{+241} \\ 463 \end{array}$$

Ask a student to record the work at the chalkboard as you demonstrate on the abacus. Say, "In subtraction, to check our answer we can add the subtrahend, the amount you took away, to the difference."

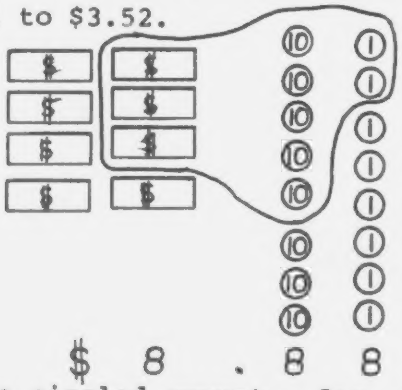
Repeat this procedure using other numbers.

2.03.02

2.03.02.02 **subtract money through $9.99 without regrouping (exchange) and check**

STRATEGY 1: Prepare coins and bills for demonstration. Say, "Today is Julia's eighth birthday. She received a gift of eight dollars and eighty-eight cents." Display that amount of money on the chalkboard with $8.88 written beneath it. Ask a student to act as Julia. Display a "gift" with a price of $3.52. Say, "If you buy this gift how much money will you have left?" Ask the student to circle bills and coins equal to $3.52.

e.g.,



Point to the circled amount. Say, "This is the amount of money we will spend or take away." Ask the students to write the example for this problem as the student at the chalkboard solves it using both the play money and the algorithm, $8.88.

$$\begin{array}{r} \$8.88 \\ -\$3.52 \\ \hline \$5.36 \end{array}$$

Say, "Here is a bill for $3.52 with your 'gift.' To check your work, add the amount you have left ($5.36) and the amount you spent ($3.52) for the gift , $5.36.

$$\begin{array}{r} \$5.36 \\ +\$3.52 \\ \hline \$8.88 \end{array}$$

Say, "Since the sum is $8.88, which is the same amount with which we started, the check shows that the subtraction was correct."

2.03.02

STRATEGY 2: Prepare play money and party favors, e.g., hats, candles and balloons. Give each group of students an "allowance" of $3.75. Ask the students to count and sort their money. Say, "We will shop for Sally's birthday party." Display a box of candles and say, "These candles cost $1.23. If we buy them, how much money will we have left for other party favors?" Ask a student to write the algorithm for this problem on the chalkboard as other students solve the problem with their play money, e.g.,

$$\begin{array}{r} \$3.75 \\ \underline{-1.23} \end{array}$$

If necessary, review the correct placement of the $ and . in the minuend and in the answer. Repeat this procedure by "buying" a few more party items.

Say, "To check your work, add the amount of money you have left to the amount on the bill."
e.g.,

$$\begin{array}{rl} \$2.52 & \text{(amount left)} \\ +\underline{\$1.23} & \text{(bill)} \\ \$5.75 & \end{array}$$

Say, "If the sum is the same as the amount with which you started, then your subtraction was correct."

2.03.02.03 **solve story problems related to skills learned in this module**

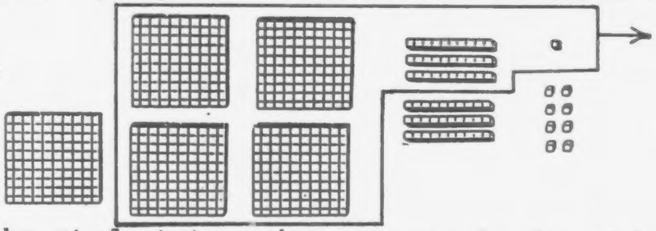
STRATEGY 1: Prepare squared material (nine hundreds, nine tens, and nine ones) for each student or group of students. Say, "On Monday morning Mr. Brown had 567 newspapers. That morning he sold 431 newspapers. How many newspapers did he have left

STRATEGY 1: cont'd

on Monday evening? How can this problem be solved?"

Ask a student to use the squared material to show 567. Say, "Now take away the number of newspapers he sold." (431) Draw a line with an arrow around 431.

e.g.,



Ask the student to write an example for this problem at the chalkboard. Say, "What sign tells us we are taking away?" Write the minus symbol (-) next to 431.

e.g.,

```
   567 (newspapers)
  -431 (newspapers sold)
   136 (newspapers left)
```

Ask the students to compare the squared material representing the remaining newspapers (1 hundred, 3 tens and 6 ones) with the original squared material. Say, "To check, add the number of newspapers left to the number of newspapers sold."

Review the questions involved in solving a story problem.

STRATEGY 2:

Prepare several packages of play money, each containing $7.85. Divide the class into several groups. Distribute a package to each group and ask the students to count the money and write the amount on a sheet of paper.

Display an item for sale, e.g., a book which costs $1.25. Ask the students to spend $1.25 and find out how much money they will have left?

Say, "How did you use the money to help solve the

STRATEGY 2: cont'd

problem? Did you write an example?" Ask a student to write his/her example on the chalkboard. Say, "How much money did you have left? Check your answer by adding the amount of money left to the cost of the book."

e.g.,

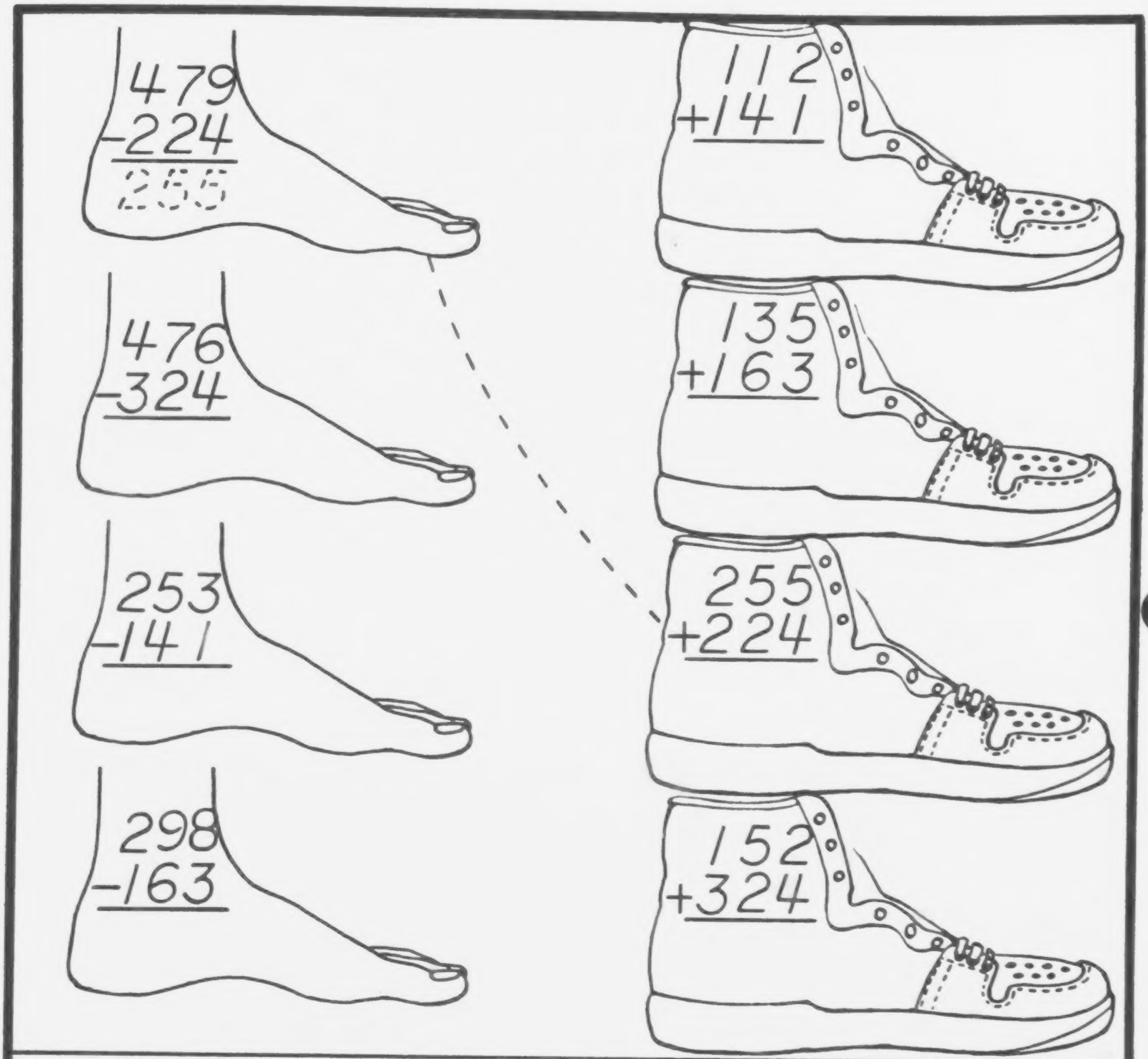
		Check
$7.85		$6.60
-$1.25	(cost of book)	+1.25
$6.60		$7.85

Repeat this procedure using similar subtraction problems, making certain that regrouping (exchange) will not be needed.

P.O. 2.03.02.01

NAME: ______________________ CLASS: ________ DATE: ________

Subtract. Match each foot to the boot that checks your answer.


479
-224
255
476
-324
253
-141
298
-163
112
+141
135
+163
255
+224
152
+324

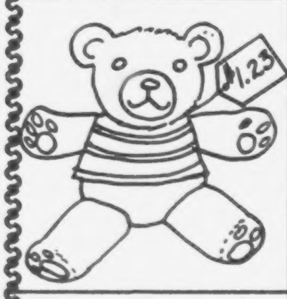
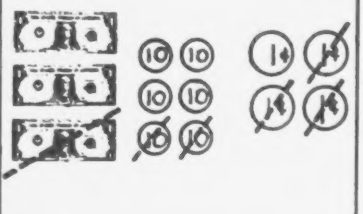
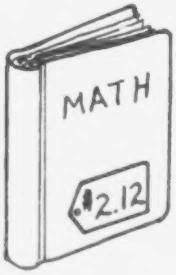
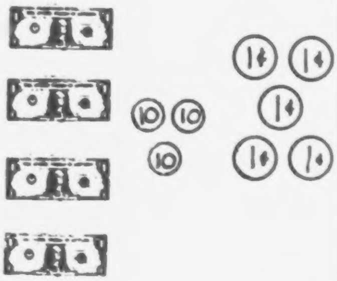
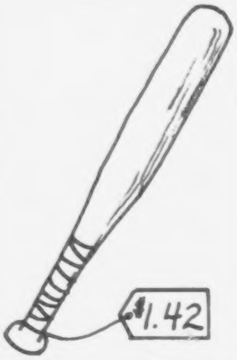
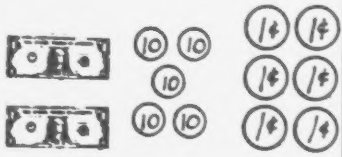
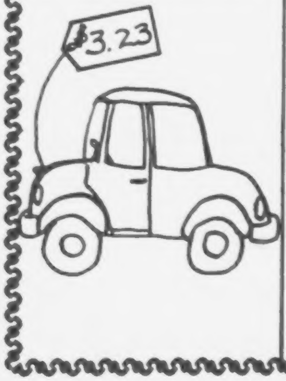
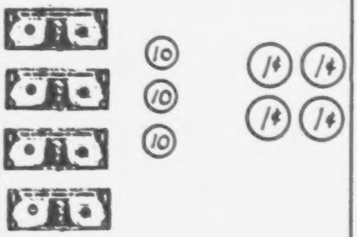
DO YOU REMEMBER?

Karen is walking to Pat's house which is number 32. All the house numbers are even. She is now at house number 24. How many houses must she pass to arrive at Pat's house?

P.O. 2.03.02.02

NAME: ______________________ CLASS: __________ DATE: ________

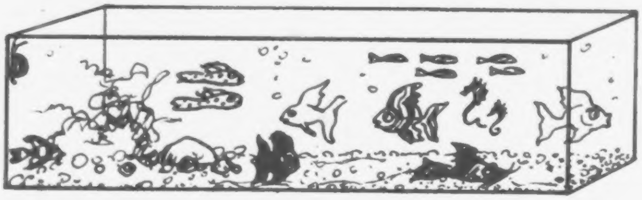
How much money is left? Subtract and check your work.

cost of item	you have	How much is left?	check
		$\begin{array}{r}\$364\\-1.23\\\hline\$\boxed{2.41}\end{array}$	$\begin{array}{r}\$\boxed{2.41}\\+1.23\\\hline\$\end{array}$
		$\begin{array}{r}\$4.35\\-2.12\\\hline\boxed{}\end{array}$	$\begin{array}{r}\$\boxed{}\\+2.12\\\hline\end{array}$
		$\begin{array}{r}\$2.56\\-1.42\\\hline\boxed{}\end{array}$	$\begin{array}{r}\$\boxed{}\\+1.42\\\hline\end{array}$
		$\begin{array}{r}\$4.34\\-3.23\\\hline\boxed{}\end{array}$	$\begin{array}{r}\$\boxed{}\\+3.23\\\hline\end{array}$

P.O. 2.03.02.03

NAME: ______________________ CLASS: __________ DATE: ________

Solve each problem and check. Find the addition problem.
Place an X in teh box with the addition problem.



1. On Monday, Mr. Brown had 325 angel fish. By Wednesday he sold 113 angel fish. How many angel fish did he have left?

☐

$$\begin{array}{r} 325 \\ -\underline{113} \end{array} \qquad \begin{array}{r} \underline{\text{CHECK}} \\ 212 \\ +\underline{113} \end{array}$$

2. The regular price for a guppy is $2.89. The sale price is $1.75. How much money can you save if you buy the guppy on sale?

☐

3. An angel fish costs $2.45. A goldfish costs $1.33. How much more does an angel fish cost than a goldfish?

☐

4. Mr. Brown ordered 734 snails. Only 313 were sent. How many were not sent?

☐

2.13.02 GUESS AND CHECK

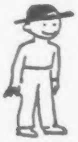
(2 lessons)

PERFORMANCE OBJECTIVES

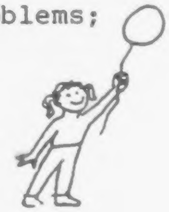
The student will be able to...

2.13.02.01A check guesses against problem conditions in non-numerical problems;

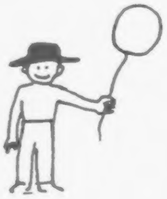
e.g.,



David



Joyce



Joe

Conditions:

I'm thinking of a student. (David, Joyce, Joe)

The student is wearing a hat. (David, Joe)

The student is holding a balloon. (Joe)

Who is it? (Joe)

2.13.02.02A check guesses against problem conditions in numerical problems.

e.g.,

Guess my number.
It is a number between 1 and 10.
It is an odd number.
It is greater than seven.

2.13.02

VOCABULARY

TERMS

guess

GETTING STARTED

Elicit from students what a "guess" is. Say, "I am thinking of a number." Ask students to guess the number without being given any clues. Elicit from the students that in order to make a good guess you must have clues.

Prepare and display a bag of chips. Reach in and grab a handful of chips. Say, "Guess how many chips I have? Do you think I have 500? ...20?...4? What is a reasonable guess?" Count the chips and ask the students if their guesses were reasonable.

2.13.02

2.13.02.01 **check guesses against problem conditions in non-numerical problems**

STRATEGY 1: Say, "Today we will play a guessing game. I will write a student's name on a piece of paper. I will give you clues to help you guess the name I wrote." Give clues, one at a time, so students can deduce the correct answer.

e.g.,

The student is wearing sneakers.
The student has blue eyes.
The student is wearing a pink sweater.

Repeat this procedure several times. Then ask students to give the clues.

STRATEGY 2: Prepare a set of cards, each with a different picture, e.g., book, table, pencil, chair. Arrange the students in a circle. Display the picture cards and say, "Today you will see how good you are at guessing. I will think of an object on one of the cards. Each student may ask one clue question to help him/her guess the name of the object. If you think you know the object, you may say its name. The one who guesses correctly then becomes the leader." Begin with a question from one student. Answer the question and proceed clockwise around the circle.

2.13.02.02 **check guesses against problem conditions in numerical problems**

STRATEGY 1: Prepare and display a jar of 37 marbles, chips, jellybeans or other small objects. Say, "We will play a guessing game. You will try to guess the number of marbles in this jar. I will help you by giving one clue at a time. You may raise your hand at anytime, but you have only one guess. The first one to guess the correct number wins."
e.g.,

I am thinking of a number between 30 and 40.
(31, 32, 33, 34, 35, 36, 37, 38, 39)
It is odd.
(31, 33, 35, 37, 39)
It is 3 more than 34.
(37)

Select a student to check the correct guess by counting the objects in the jar. Repeat the procedure by adding or removing objects from the jar.

STRATEGY 2: Prepare and display a set of cards, each with a different number, 0 through 999.

Divide the class into two teams. Select a 'moderator.' Say, "Today we will play Guess My Number. Each card has a number with up to three digits. The moderator will select a card and give clues to two students, one from each team. The first player to correctly guess the secret number will score a point for his/her team. Let's do one together.
e.g.,

I am thinking of a number.
It has two digits.
It is four less than nineteen.
What is my number?" (15)

Repeat this procedure until all of the cards have been used.

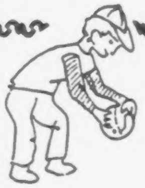
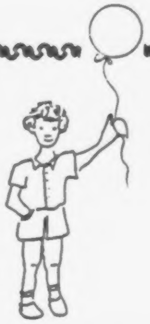
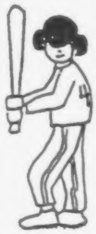
P.O. 2.13.02.01

NAME: ____________________ CLASS: __________ DATE: __________

Circle the correct picture.

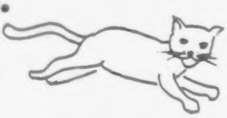
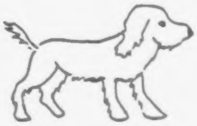
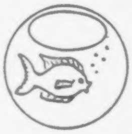
1. Who am I?

Clues: I am wearing a hat.
I am holding something.
I am holding something that bounces.

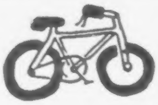
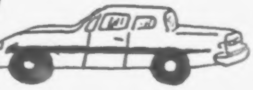
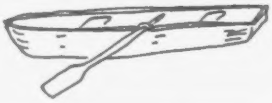
2. Which animal is it?

Clues: The animal is soft.
The animal has 4 legs.
The animal barks.

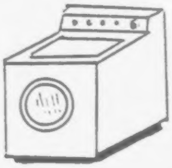
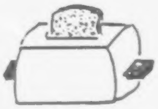
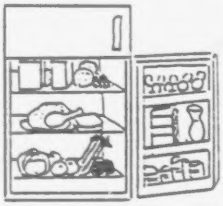
3. What am I?

Clues: I have wheels.
I have a seat.
I have an engine.

4. What am I?

Clues: I work by electricity.
I have a door.
I keep things cold.

DO YOU REMEMBER?

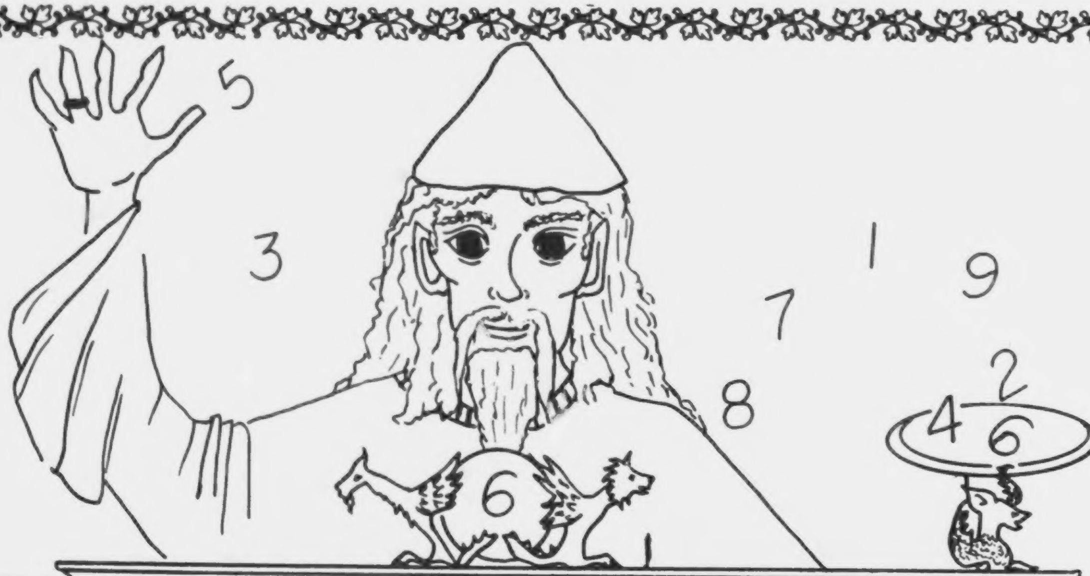
Which number makes every example true?

$$\begin{array}{r} 2\square \\ +43 \\ \hline \square 9 \end{array} \qquad \begin{array}{r} 5\square \\ +13 \\ \hline \square 9 \end{array} \qquad \begin{array}{r} 3\square \\ +\square 2 \\ \hline 98 \end{array} \qquad \begin{array}{r} 1\square \\ +50 \\ \hline \square 6 \end{array}$$

P.O. 2.13.02.02

NAME:______________________________ CLASS:__________ DATE:________

Read the clues. Circle the number that answers all the clues.



A. Guess My Number.

It is a number between 1 and 10.

It is an even number.

(3, 9, 4, 12)

B. Guess My Number.

It is between 50 and 100.

It is an odd number.

It is less than 75.

(13, 64, 87, 61, 7)

C. Guess My Number.

It is > 10.

It is < 40.

It is not 20.

(10, 20, 30, 40)

D. Guess My Number.

It is a two-digit number.

It is > 20.

It is not even.

(26, 9, 91, 16)

2.13.03 USE DATA

(2 lessons)

PERFORMANCE OBJECTIVES

The student will be able to...

2.13.03.01A answer questions based upon a set of data; e.g.,

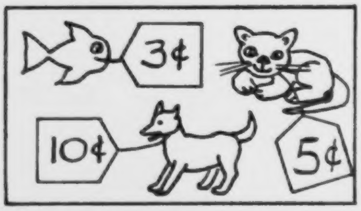
Favorite Flavors

Flavors	Boys	Girls
strawberry	11	9
vanilla	7	6

How many boys chose vanilla?

How many students voted?

2.13.03.02A create questions based upon a set of data; e.g.,



How much does the toy fish cost?

How much more does the dog cost than the fish?

2.13.03.03A make inferences based upon a set of data. e.g.,

DECEMBER						
S	M	T	W	T	F	S
	1	2	3	4	5	6
7	8	9	10	11	12	13
14	15	16	17	18	19	20
21	22	23	24	25	26	27
28	29	30	31			

On what day of the week did November end?

2.13.03

VOCABULARY

TERMS

data
inferences

GETTING STARTED

Construct and display an experience chart with the first name of each student. Ask each student for his/her favorite pet. Make a chart of the students' favorite pets.

e.g.,

Name	Favorite Pet
Joe	Dog
Karen	Cat

Prepare and display a bag containing three colors of interlocking cubes, chips or blocks and the following chart.

e.g.,

	red	yellow	blue
number of cubes			

Ask each student to remove one cube, chip or block from the bag. The student will then place a tally mark under the word corresponding to the color they have chosen. When all of the students have had a turn, tabulate the results.

2.13.03

2.13.03.01 **answer questions based upon a set of data**

STRATEGY 1: Prepare several boxes, each containing varying numbers of red, blue, and yellow crayons. Divide the class into groups and give each group one of the boxes. Write this table on the chalkboard.
e.g.,

Name of Group	Red	Blue	Yellow	Total

Say, "Count the red crayons in your shoebox. How many red crayons are there?" Write the number on the table. Repeat this procedure for the blue and yellow crayons and complete the table. Say, "Which group had the most red (blue, yellow) crayons? ...the fewest? How many crayons did each group have in all?"

STRATEGY 2: Prepare and display the following table on the chalkboard.
e.g.,

Favorite Kinds of Fruits

Fruit	Number of Students
banana	
apple	
orange	

Conduct a survey of the students' favorite fruits and complete the table. Say, "Which is the favorite fruit? ...least favorite fruit? How many students voted? How many more students like bananas than apples? ...than oranges?"

Repeat this procedure varying the questions.

2.13.03

2.13.03.02 create questions based upon a set of data

STRATEGY 1: Prepare and display cutouts of toys with price tags. Say, "The toy shop will open tomorrow. Here are samples of all the toys that will be available. The manager of the toy shop has a problem. He knows people will ask questions about each of the toys and he wants to be prepared with answers. Can you help him think of some questions? Choose a toy that you would like to buy. Think of a question you might ask about it. Perhaps your favorite toy is the teddy bear. A question you might ask is, 'How much does a teddy bear cost?' or,'How much more is the teddy bear than the toy fish?' Who can ask a question which compares the doll with the teddy bear? What addition question might you ask if you wanted to buy a bat and a ball?"

Repeat this procedure until all the students have asked at least one question.

STRATEGY 2: Prepare and display a chart showing items that can be purchased at a fast food restaurant.
e.g.,

Burgerland Menu			
Food		Drinks	
Hamburger	50¢	Soda	45¢
Cheeseburger	80¢	Shake	85¢
Fries	70¢	Iced Tea	40¢

Say, "Today we are going to Burgerland for lunch. The menu is a chart which shows the different food items that you can buy." Ask the students to make up questions about the items on the chart, e.g., "How much do a hamburger and a soda cost altogether?" Write the question on the chalkboard. Ask the students to solve their classmates' problems.

2.13.03

2.13.03.03 **make inferences based upon a set of data**

STRATEGY 1: Draw the following chart on the chalkboard.

Day	Temperature
Monday	24°
Tuesday	28°
Wednesday	30°
Thursday	26°
Friday	28°

Say, "This chart shows temperatures for five days in New York City. What season of the year do you think it is? (winter) Why? What outer clothing would people wear? (scarves, gloves, hats, coats) Why? What do you think the temperature might be on Saturday?"

STRATEGY 2: Display a calendar of the current month. Distribute a copy to each student and say, "How many days does this month have? You know the number of days by looking at the last number on the calendar. If you look carefully, it will also help you with information that is not shown." Ask the students questions based on information not shown on the calendar. On what day of the week did last month end?...will next month begin?"

Repeat this procedure when introducing each monthly calendar.

P.O. 2.13.03.01

NAME: ______________________ CLASS: ________ DATE: ________

Read the chart to help you answer all the questions.

FAVORITE FLAVORS

Flavor	Boys	Girls
Chocolate	15	2
Vanilla	4	13
Strawberry	1	1

1. How many boys like chocolate? ________

2. How many boys voted? ________

3. How many girls voted? ________

4. How many boys and girls voted? ________

5. How many more girls than boys like vanilla? ________

6. Which flavors have the same total number of votes?

________________ ________________

DO YOU REMEMBER?

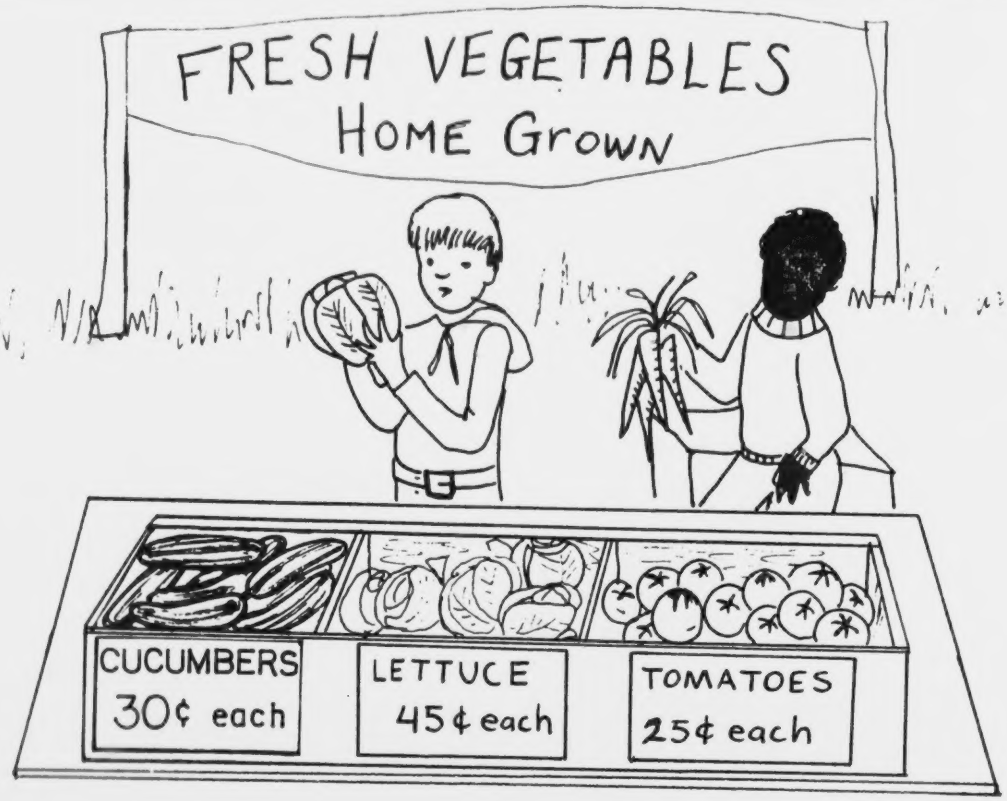
WRITE > OR <.

645 ○ 654 716 ○ 607
327 ○ 273 405 ○ 450
431 ○ 430 390 ○ 401

P.O. 2.13.03.02

NAME: ________________________ CLASS: __________ DATE: ________

Write four questions about this picture.


FRESH VEGETABLES
HOME Grown
CUCUMBERS
30¢ each
LETTUCE
45¢ each
TOMATOES
25¢ each

1. ______________________________

2. ______________________________

3. ______________________________

4. ______________________________

P.O. 2.13.03.03

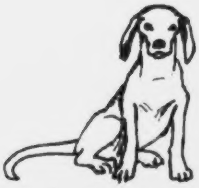
NAME: ______________________________ CLASS: __________ DATE: ________

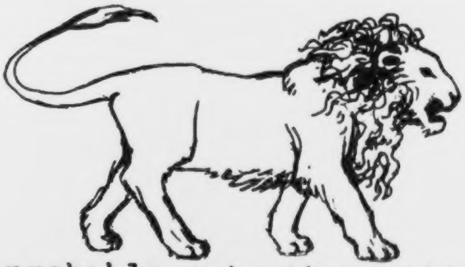
Answer the questions in each part.

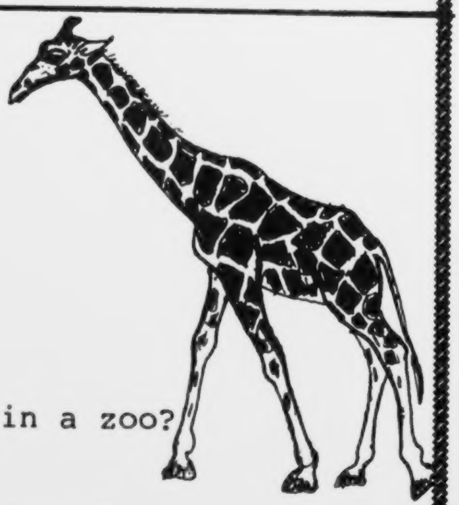
1985			NOVEMBER			1985
Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
					1	2
3	4	5	6	7	8	9
10	11	12	13	14	15	16
17	18	19	20	21	22	23
24	25	26	27	28	29	30

1. On which day of the week did October end? ______________

2. On which day of the week will December begin? ____________







1. Which animal probably eats the most?

____

2. Which animals would you probably find in a zoo?

________________ ________________

3. Which animal is probably the friendliest?

____

4. Which animal would you probably find as a pet?

____

2.12.02 BAR GRAPHS

(1-2 lessons)

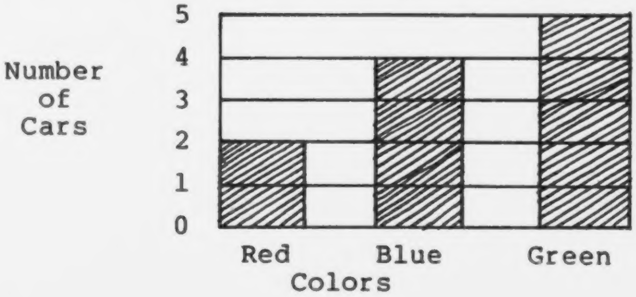
PERFORMANCE OBJECTIVES

The student will be able to...

2.12.02.01A collect and structure data based on personal or group experiences to complete a bar graph; e.g.,

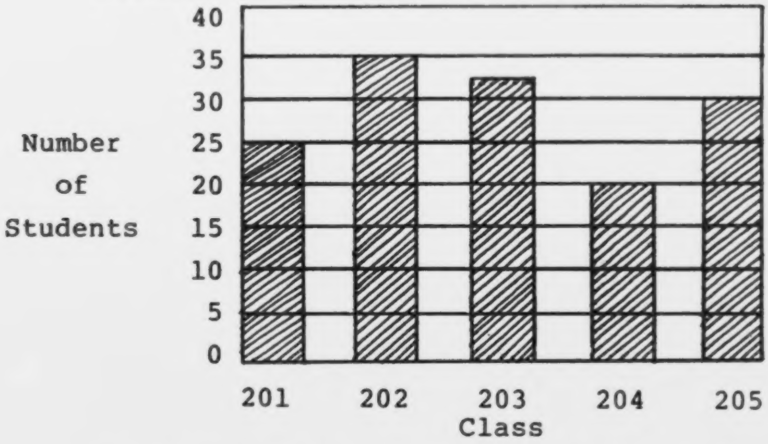
Color of Cars	Number
red	2
blue	4
green	5

Number of Cars We Counted Today



2.12.02.02A interpret a bar graph.
e.g.,

Attendance in the Second Grade on Monday



How many students were present in Class 203?
Which class had the most students absent?

2.12.02

VOCABULARY

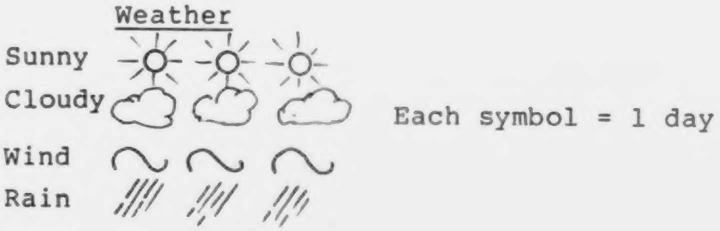
TERMS

bar graph
table
data
information

GETTING STARTED

Survey the class for favorite video games. Construct a table for the games and tally the students responses. Ask questions about the data, e.g., Which game is most popular? ...least popular?

Prepare a monthly calendar with weather information for each day on it. Use this data to construct a weather pictograph.
e.g.,



Say, "What can we learn from this pictograph? How many days were sunny? ...cloudy? ...windy? ...rainy?" Repeat this procedure for other information, e.g., fog, snow, hot, cold.

2.12.02

2.12.02.01 **collect and structure data based on personal or group experiences to complete a bar graph**

STRATEGY 1: Prepare a chart with the names of various animals and space for tallying. Ask the students to indicate their favorite animal by making a tally mark next to the animal's name.

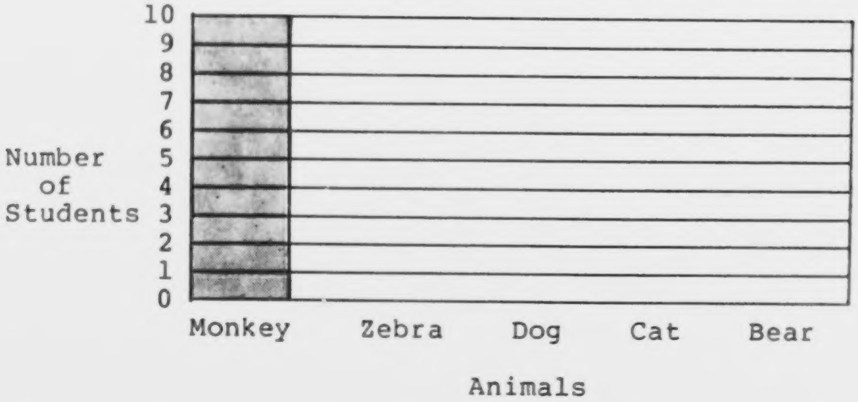
e.g.,

Favorite Animals

Animals	Tally
Monkey	𝍸 𝍸
Zebra	||
Dog	𝍸 𝍸 𝍸
Cat	𝍸 |||
Bear	|

Prepare a graph on one-inch graph paper.

e.g.,


Favorite Animals

Say, "Look at the chart with the tallies. We will use these tallies to make a bar graph. How many students liked monkeys best? (10) Let's make a bar starting at zero and ending at ten which shows how many students like monkeys best." Ask a student to make a bar in the column labeled Monkey. Repeat this procedure for the other animals.

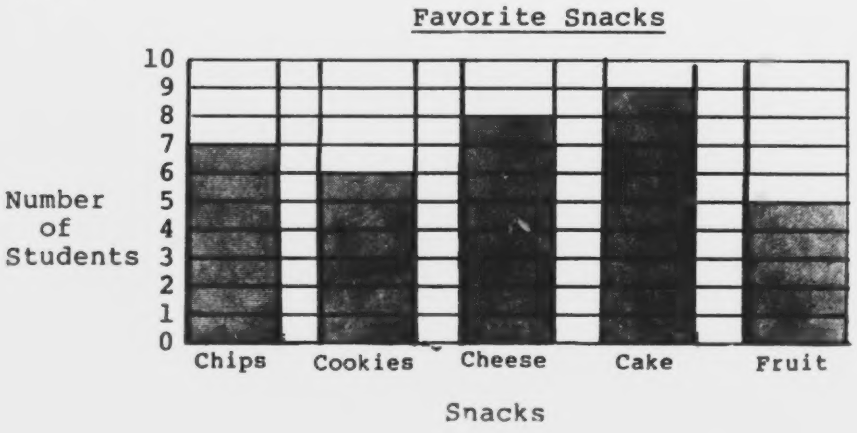
STRATEGY 2: Write and display the names of the snacks students like. Ask the students to raise their hands as their favorite snack is mentioned. Record the data.

e.g.,

Favorite Snacks	
Chips	7
Cookies	6
Cheese	8
Cake	9
Fruit	5

Using this data, ask several students to construct a bar graph on an experience chart, making sure they include and label both axes and title the graph.

e.g.,



2.12.02.02 **interpret a bar graph**

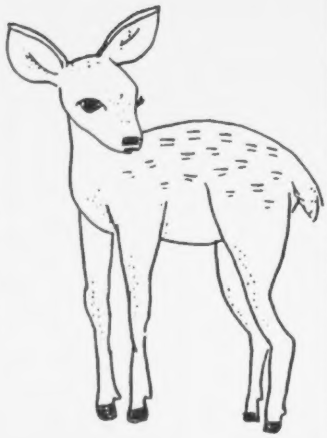
STRATEGY 1: For this strategy adapt the bar graph, Favorite Animals, constructed in Strategy 1 of P.O. 2.12.02.01. Say, "What information can you find by looking at the graph? How many students like dogs best? How many more students like monkeys than cats?" Repeat this procedure with other questions until each student has had an opportunity to respond. Ask the students to create questions about the graph.

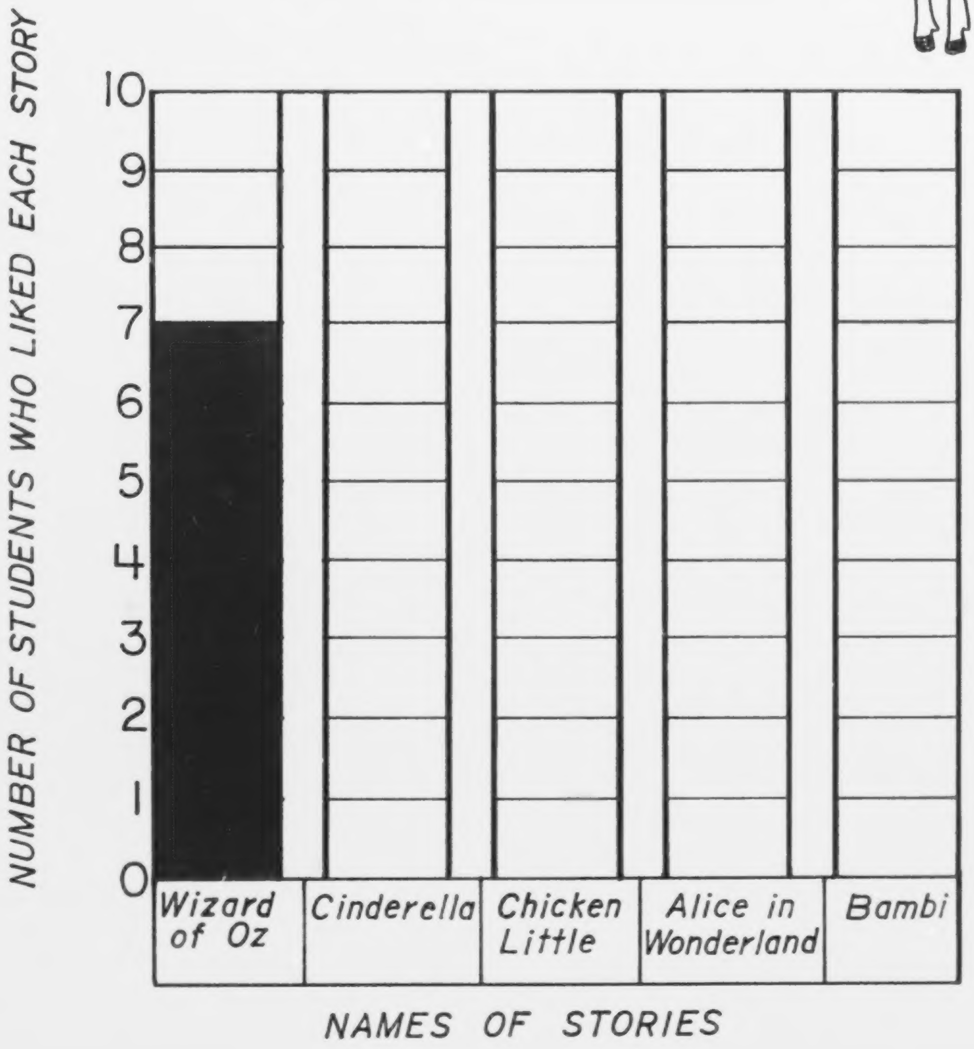
P.O. 2.12.02.01

NAME: ______________________ **CLASS:** __________ **DATE:** ________

Use the information on the chart to complete the bar graph.

FAVORITE STORIES	NUMBER OF STUDENTS WHO LIKED THEM
Wizard of Oz	𝍸 ||
Cinderella	||||
Chicken Little	|||
Alice in Wonderland	𝍸
Bambi	𝍸 ||||

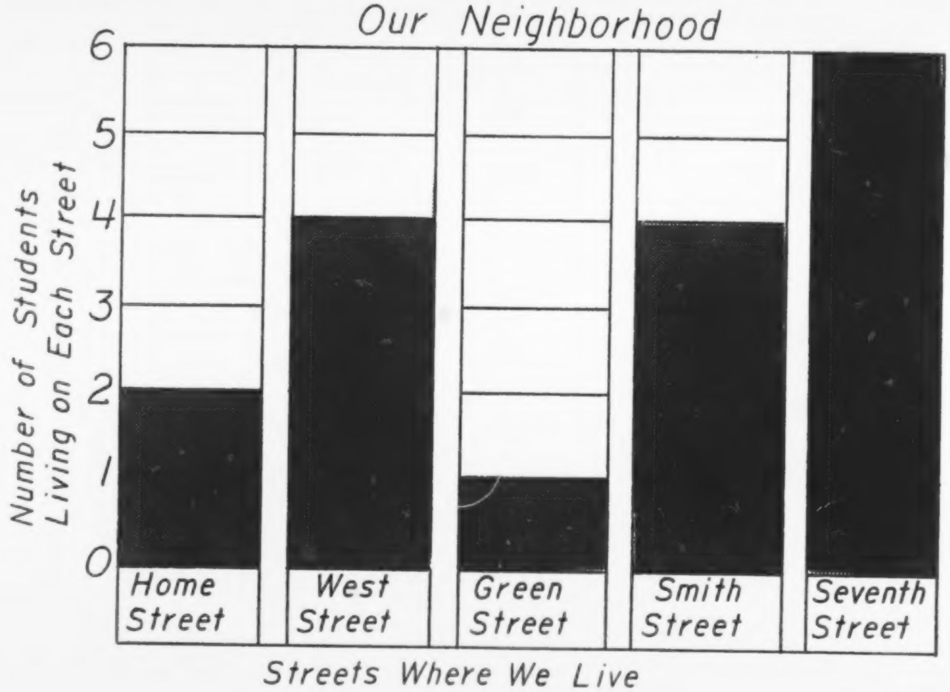




P.O. 2.12.02.02

NAME:______________________________ CLASS:__________ DATE:________

Use the bar graph to answer the questions.



1. How many students live on Home Street? ____________
2. On which street do the most students live? ____________
3. On which street do the fewest students live? ____________
4. How many students live on Green Street and West Street together?

   ____

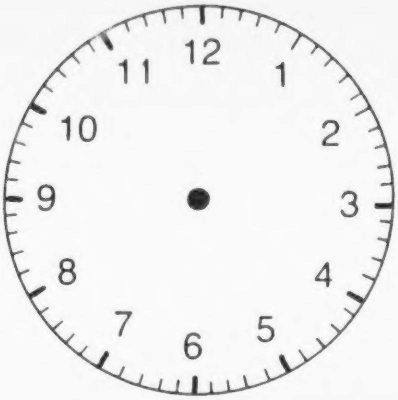
5. On which streets do an equal number of students live? ____________
6. On which street do 6 students live? ____________
7. How many more students live on Seventh Street than on Green Street?

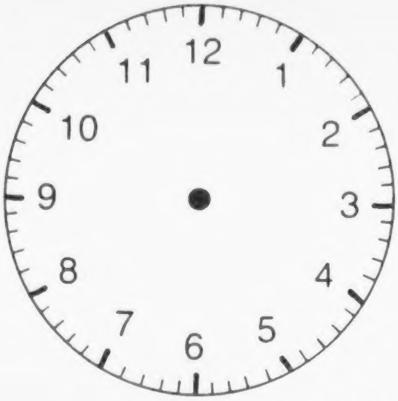
   ____

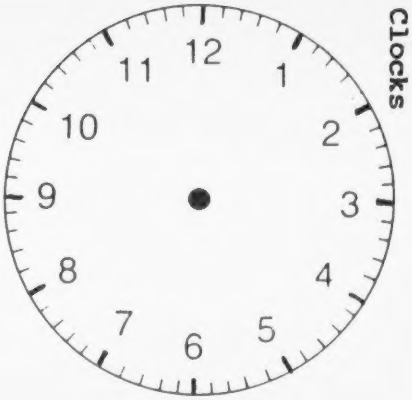
8. How many streets are shown on the graph? ____________

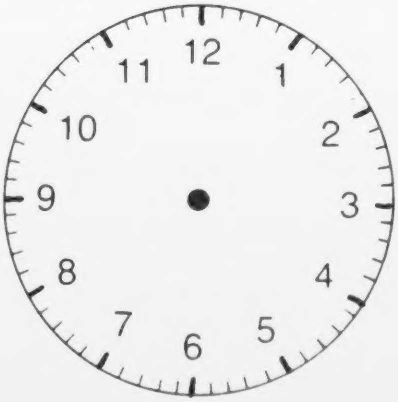
Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday

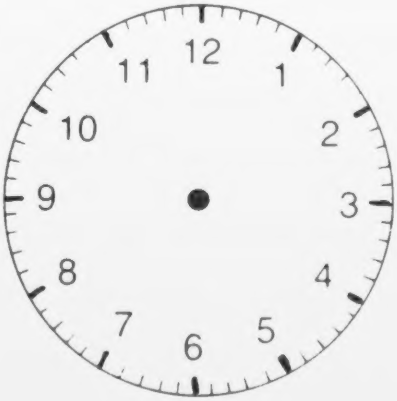
RESOURCE MATERIAL - Calendar

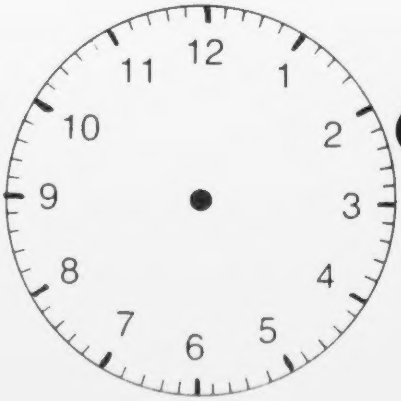


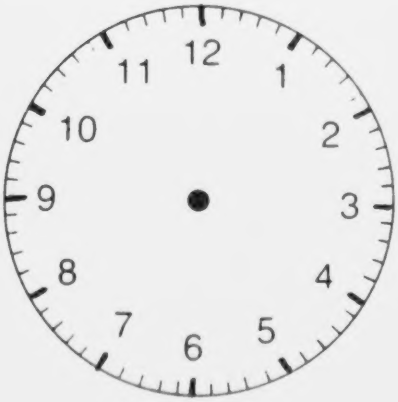


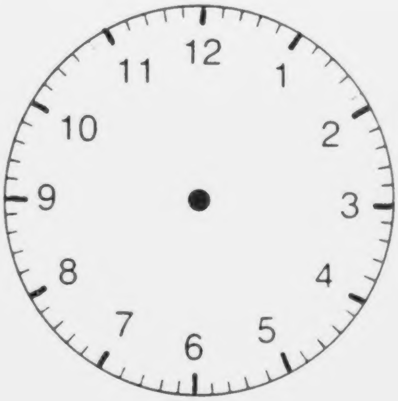


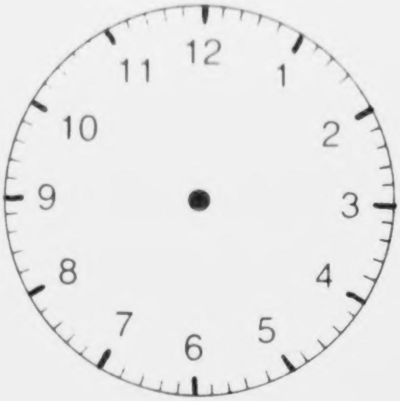


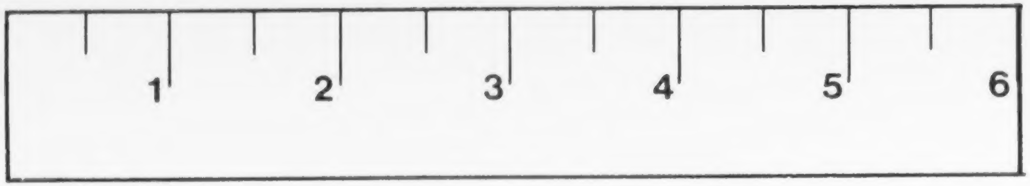


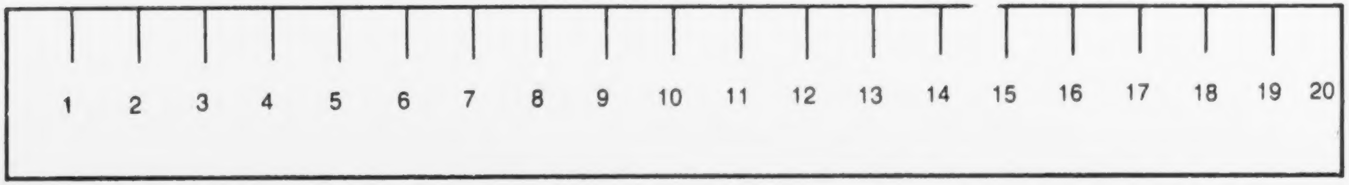








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3
4
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10
11
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17
18
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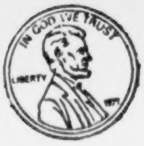
20

RESOURCE MATERIAL - Rulers

1	2	3	4	5	6	7	8	9	10
11	12	13	14	15	16	17	18	19	20
21	22	23	24	25	26	27	28	29	30
31	32	33	34	35	36	37	38	39	40
41	42	43	44	45	46	47	48	49	50
51	52	53	54	55	56	57	58	59	60
61	62	63	64	65	66	67	68	69	70
71	72	73	74	75	76	77	78	79	80
81	82	83	84	85	86	87	88	89	90
91	92	93	94	95	96	97	98	99	100

RESOURCE MATERIAL - Money (1)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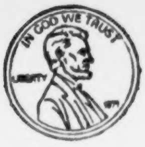
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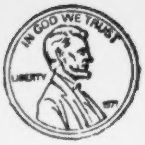
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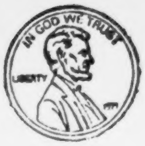
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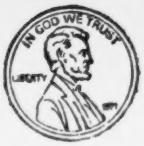
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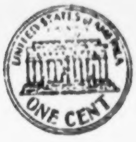
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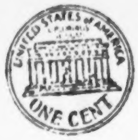
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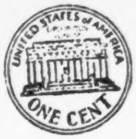
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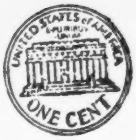
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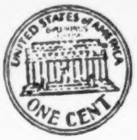
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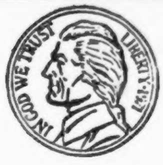
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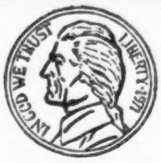
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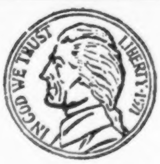
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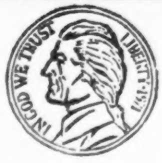
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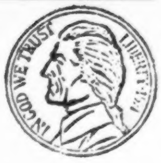
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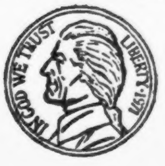
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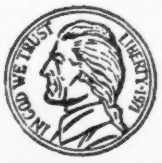
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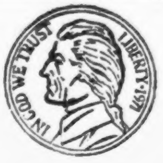
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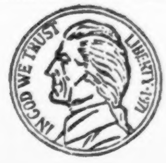
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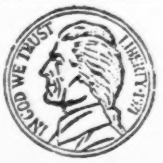
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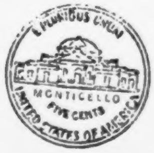
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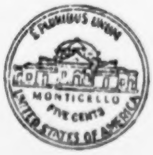
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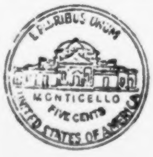
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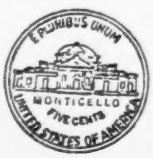
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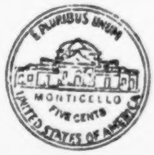
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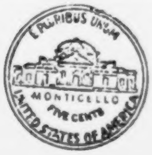
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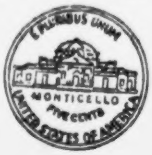
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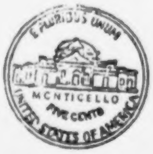
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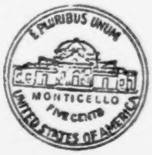
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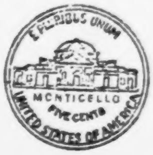
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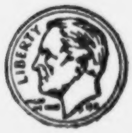

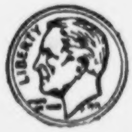

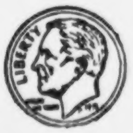

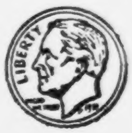

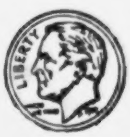

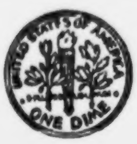
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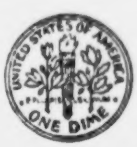
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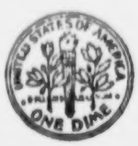
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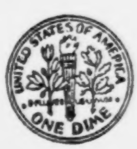
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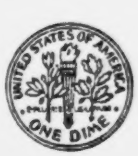
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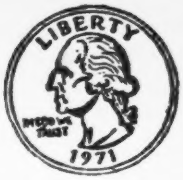
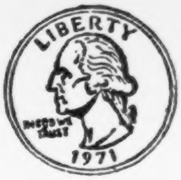

LIBERTY
IN GOD WE TRUST
1971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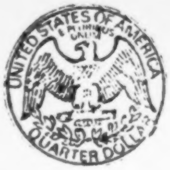
IN GOD WE TRUST
1971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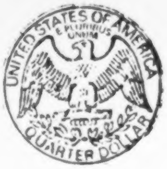
E PLURIBUS UNUM
QUARTER DOLLAR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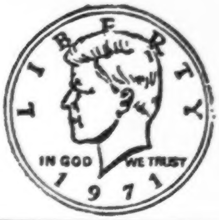
E PLURIBUS UNUM
QUARTER DOLLAR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IN GOD WE TRUST
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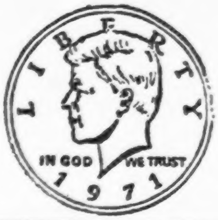
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IN GOD WE TRUST
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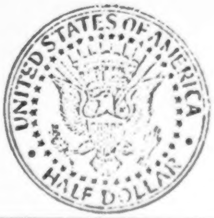
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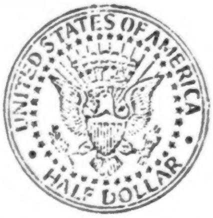
HALF DOLLAR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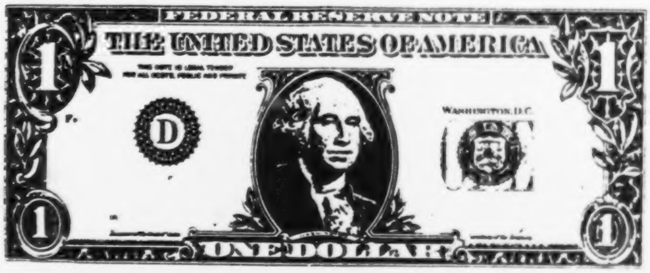
FEDERAL RESERVE NOTE
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WASHINGTON, D.C.
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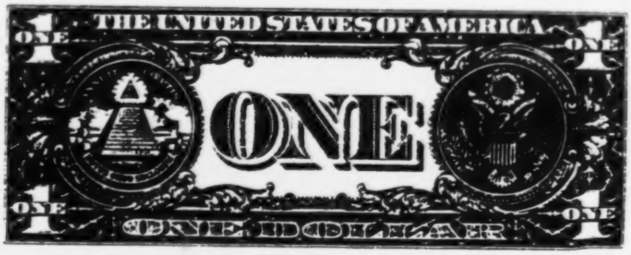
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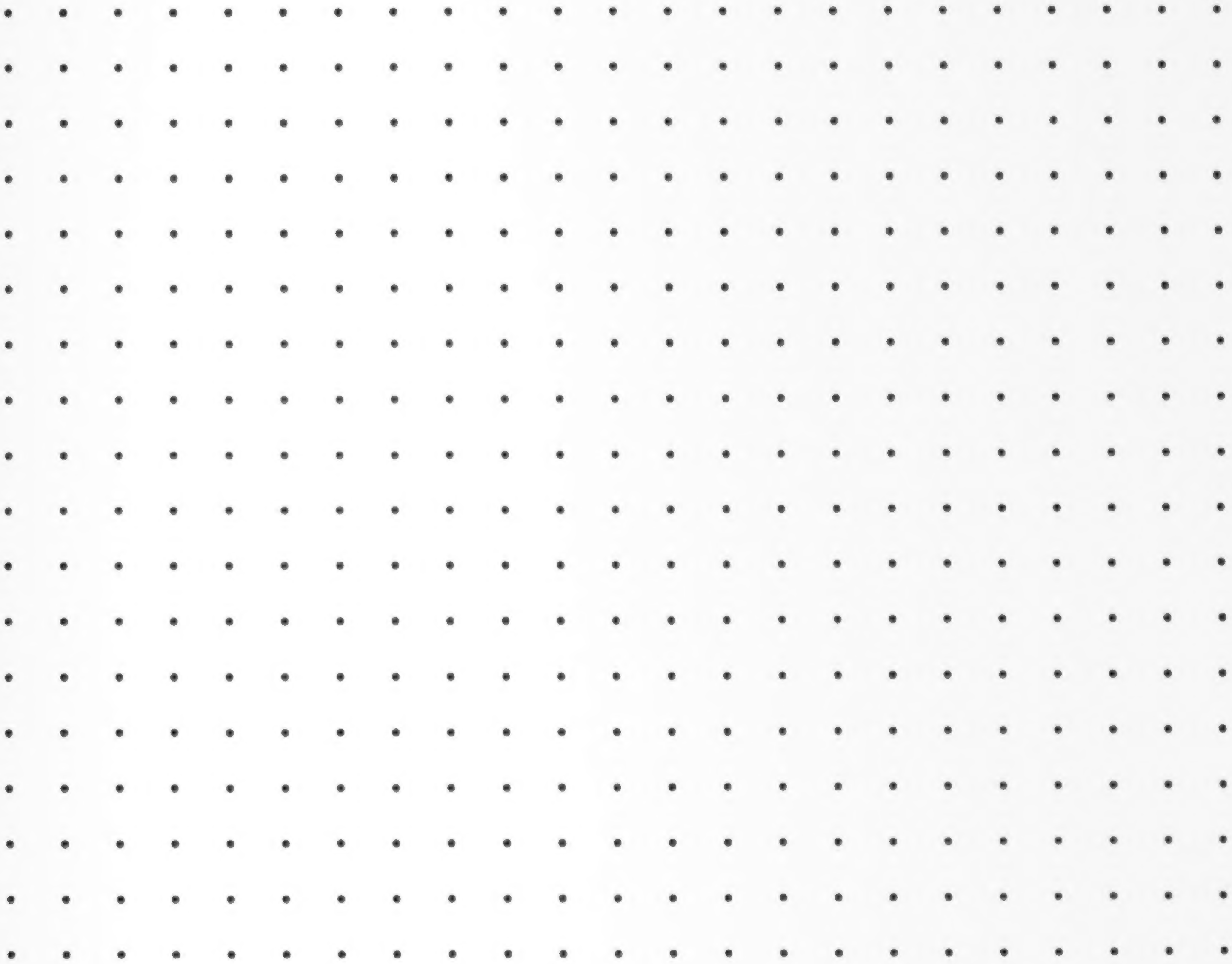
RESOURCE MATERIAL - Dot Paper (1) Geometry



RESOURCE MATERIAL - Graph Paper

TABLE OF SYMBOLS

DEFINITIONS	SYMBOL	DEFINITIONS	SYMBOL
plus; add; positive	+	line	⟷
minus; subtract; negative	-	ray	⟶
plus or minus	+ or -	perpendicular lines	⊥
times; multiply	· or X	parallel lines	∥
divide	÷	degree	°
divide	⟌	equals	=
square root	$\sqrt{\ }$	is not equal to	≠
cube root	$\sqrt[3]{\ }$	is less than	<
angle	∡	is greater than	>
between two numerals or letters at the end of a series or sequence; and so on	...	encloses a set when numbers are included: empty set when empty	{ }
		subset	⊂
triangle	△	intersection	∩
rectangle	▭	union; join	∪
parallelogram	▱	percent	%
circle	⊙	foot, minute	'
		inch, second	"
line segment (as $\overline{AB}$)	—		

METRIC TABLE

PREFIX	VALUE	LENGTH	CAPACITY	WEIGHT (MASS)
KILO	1000	kilometer* (km)	kiloliter (kl)	kilogram* (kg)
HECTO	100	hectometer (hm)	hectoliter (hl)	hectogram (hg)
DEKA	10	dekameter (dam)	dekaliter (dal)	dekagram (dag)
	1	meter* (m)	liter* (l)	gram* (g)
DECI	$\frac{1}{10}$ or .10	decimeter (dm)	deciliter (dl)	decigram (dg)
CENTI	$\frac{1}{100}$ or .01	centimeter* (cm)	centiliter (cl)	centigram (cg)
MILLI	$\frac{1}{1000}$ or .001	millimeter* (mm)	milliliter (ml)	milligram* (mg)

* most frequently used

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BASIC CLASSROOM EQUIPMENT CHECKLIST

MATERIALS:

Abacus - Class size/indiv....... ____

Attribute blocks................ ____

Balance Beam.................... ____

Calculators..................... ____

Calendar - class size........... ____

Clock - large - class size...... ____

Clock - individual size......... ____

Clock - stamp................... ____

Coin stamps..................... ____

Compass......................... ____

Cubic counting blocks........... ____

Cuisenaire rods................. ____

Dominoes........................ ____

Felt cut-outs................... ____

Flannel board................... ____

Flash cards..................... ____

Fractional parts (assorted)..... ____

Geo boards...................... ____

Geometric patterns.............. ____

Hundred charts - class size/ind. ____

Interlocking cubes.............. ____

Laminating paper................ ____

Magnetic board.................. ____

Magnetic discs.................. ____

Measuring tools-English, Metric
(rulers, scales, compasses,
protractors, beakers, cups,
spoons, thermometers).......... ____

Number lines - class/indiv...... ____

Numerals - tactile.............. ____

Plastic discs................... ____

Play money...................... ____

Powers of Ten................... ____

Protractor...................... ____

SEE calculators................. ____

Scale........................... ____

Screen (pull-down type)......... ____

Spinners........................ ____

Squared place value material.... ____

Standard playing cards.......... ____

Tangrams........................ ____

Tens frame...................... ____

Timers (1,2,3 minute)........... ____

Tokens (various sizes/colors)... ____

Trundle wheel................... ____

SUPPLIES:

Adding machine tapes (for class-
room/ind. number lines)...... ____

Chalk........................... ____

Construction paper.............. ____

Elastic bands................... ____

BASIC CLASSROOM EQUIPMENT CHECKLIST

SUPPLIES: cont'd

Envelopes (all sizes).......... ____
Erasers, board/individual...... ____
Felt pens (all sizes).......... ____
Ditto, Rexograph paper......... ____
Glue........................... ____
Gram weights................... ____
Graph paper (1 cm, <, 1")...... ____
Grease pencils................. ____
Oak tag........................ ____
Paper clips.................... ____
Paste.......................... ____
Plastic discs.................. ____
Pointer........................ ____
Primary pencils................ ____
Rubber bands................... ____
Scissors - primary, left hand.. ____
Scotch tape.................... ____
Spinner........................ ____
String......................... ____
Tape........................... ____

COLLECTIBLES:

Beads and beans................ ____
Bottle caps.................... ____
Buttons........................ ____
Cardboard (all sizes).......... ____
Cereal boxes................... ____
Coffee cans.................... ____
Detergent boxes, shoe boxes, meat trays, and plastic containers.................. ____
Egg cartons.................... ____
Felt for desk mats............. ____
Ice cream sticks............... ____
Juice containers............... ____
Macaroni....................... ____
Magazines...................... ____
Menus.......................... ____
Metrically measured cartons.... ____
Milk containers................ ____
Newspapers..................... ____
Paper plates................... ____
Sand........................... ____
Spools......................... ____
String, yarn................... ____
Styrofoam...................... ____
Tongue depressors.............. ____
Wire hangers................... ____
Ziploc Bags.................... ____